

Summary of PMJV Documentation sent to ArDOT

Tab	Date Sent	PMJV Document	Reply Duration	Pages
A	8/27/19	RFI 75-Possible Cold Joint with Calcs, shows cap is fine		20
B	9/6/19	RFI 75R1-Additional Calcs, confirms cap is fine as-is	2	11
9/12/19 Mtg with ArDOT-PMJV-Terracon				
C	9/13/19	RFI 75R2-Add Shear Friction Calc, cap has excess capacity	3	5
D	9/24/19	Appeal to Chief Eng. with 3rd Party Eng who agrees cap is fine	4	8
9/25/19 Mtg with ArDOT-Jacobs-PMJV				
E	9/27/19	ASTM Definition & Mix set time tests	0	10
F	9/27/19	Strength Calcs from deck down, reconfirm cap is fine	3	118
G	10/3/19	Comprehensive Pier Cap Analysis, capacity > loads	6	246
H	10/28/19	PMJV Requests Mtg to resolve eng	5	2
11/6/19 Mtg with ArDOT-Jacobs-PMJV				
I	11/21/19	Appeal to Chief Eng. to Set Steel, since strength confirmed	0	9
J	11/27/19	Response to Chief Engineer test data shows no cold joint	2	39
K	11/27/19	To USACE - Please delay release date	NA	10
L	12/2/19	Notification of Setting Steel due to risk of collapse	NA	2
M	12/3/19	To USACE - Please slow release rate	NA	5
N	12/17/19	Inform R.E. Layoff whole crew on 12/20	NA	3
O	2/8/20	To Chief Eng-Appeal to Oversight Committee	NA	3
Total Response Time:			25	491



REQUEST FOR INFORMATION

Parsons-Mahan JV
406762- White River Bridge Replacement Project

DATE: 10/31/20179

RFI#: 0075

TO: Colton Cowles, PE
Resident Engineer
Arkansas State Highway and
Transportation Department
803 Eureka Garden Road
North Little Rock, AR 72117
PHONE: 501-590-5375
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FROM: Michael Hernandez, PE
Project Manager
Parsons-Mahan JV

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Westminster, CO 80234
PHONE: 720-576-6802
FAX:
EMAIL: Michael.Hernandez@parsons.com

This request for information may impact the cost and/or schedule of the project. A specific analysis has not been performed, but will be and any changes that result will be addressed under separate correspondence. Additionally, any suggestions not specifically stamped by a licensed professional engineer included herein have not been designed, and are provided to clarify the issue only. Adoption of the suggestion is done so at the addressee's risk.

SUBJECT: Pier 1 Pier Cap – potential cold joint

DRAWING #: Existing I-40 Bridge & AHTD 061388
SPEC SECTION: Structural Concrete

QUESTION

During the placement of the pier 1 pier cap on 8/23/19 there was a delay of a few hours due to lightning in the area creating a danger to the placing crew, inspectors, truck drivers, crane and pump operator. From 3'-2" to 3'-8" of concrete was in the full length of the pier cap. As the storm cleared the jobsite there was concern noted by the inspection team about the concrete starting initial set. The PMJV placing crew felt the concrete was still plastic enough for high-cycle vibrator to knit the pre-lightning and post-lightning placed sections together. Resident Engineer has stated the pier cap will not be accepted until physical and/or engineer analysis is provided to prove pier cap is acceptable.

SUGGESTION:

Based upon the engineering analysis in the attached memo and the actual reinforcing steel yield strength of 75+ksi in all of 60ksi specified rebar within lower 4' section, **Accept the Pier 1 Pier Cap as-is.**

If this is not adequate, we have potential options to core drill samples or apply a surface sealer to the vertical face of pier cap to reduce potential for water intrusion in possible joint.

RESPONSES

DATE	REPLY TYPE	FROM (FIRM)	FROM (CONTACT)	DATE REPLY REQUIRED
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Memorandum

File ID: Memo_190828_WhtRiver_Pier1Cap.docx

To: Michael Hernandez, PE
Sr. Project Manager, Parsons

From: Vincent Gastoni, PE
Principal Project Manager, Principal Bridge Engineer

Date: August 27, 2019

Subject: AR White River Pier 1 Pier Cap Evaluation

We have reviewed the information provided regarding the unplanned horizontal construction joint in the Pier 1 cap pour. This memo provides a summary of potential impacts to the original basis of design through conservative methodology based on AASHTO LRFD design and construction principals, engineering mechanics and engineering judgement.

Understanding of Issue

1. During the Pier 1 cap beam concrete placement the pour was suspended for approximately three hours due to severe weather with about 3.5 ft of concrete placed in the forms.
2. When the pour resumed the initial concrete appears to have started to set with the surface generally "stiff" and no longer plastic.
3. The remainder of the pour proceeded as planned and was completed in the same shift.

The interruption of pour has created a semi hard interface condition which may act as an unplanned construction joint in the pier cap system. To evaluate the potential magnitude of impact a construction joint may have on the original basis of design, we have performed a conservative preliminary analysis to approximate a two stage pour sequence and the resulting "locked in" stress this may impart into the bottom reinforcing of the pier cap system

Basis of Evaluation

1. Assume a two stage pour sequence with a horizontal construction joint to be located 3.5 ft above the bottom of the pier cap.
2. Evaluate the system for a variable concrete modulus.
3. Falsework remained in place with the cap fully supported during both placements
4. Locked-in reinforcing stress is dependent on the combined system deformation of the false work and concrete pour sequence.
5. Original basis of design assumed traditional application of self-weight applied instantaneously to monolithic concrete.
6. Recommendation to be based on an assumed modulus in the first stage concrete (3 hr cure) of 30% of the 28 day E_c .

Memorandum

August 27, 2019

AR White River Pier 1 Pier Cap Evaluation

7. The load of the second stage pour is resisted by the entire composite concrete cap after falsework removal.
8. The interface between the pours was an unfinished partially cured concrete surface, as such we can assume a surface roughness exceeding 0.25 inch amplitude providing sufficient aggregate interlock for the shear resistance assumption of monolithic concrete. Further, by inspection, there is adequate vertical reinforcing extending through the construction joint area.

Summary of Results

The assumption of a construction joint (two stage pour) results in about 3.0 ksi of locked-in reinforcement stress due to flexure (over the original basis of design values using the same methodology). Such a nominal increase in stress can normally be assumed to be within the actual material strengths used in the works over the assumed strength used in design.

Table 1 - Summary of Bottom Reinforcement Stresses at Various Concrete Moduli
(0% E_c represent the original basis of design of self-weight applied to monolithic concrete)

Assumed Concrete Modulus (E_c) at time of placement of the remaining concrete	Stress in the Reinforcement	
	FW End Continuous Span	FW Middle Cantilever
0% E_c	1.79 ksi	1.79 ksi
10% E_c	3.30 ksi	3.41ksi
20% E_c	3.87 ksi	3.97 ksi
30% E_c	4.18 ksi	4.26 ksi
40% E_c	4.36 ksi	4.43 ksi
50% E_c	4.49 ksi	4.55 ksi
95% E_c	4.76 ksi	4.80 ksi

Recommendations

Based on our structural evaluation, the minor locked-in stresses resulting from the unplanned construction joint can be considered within the scope of the AASHTO LRFD factors for nominal resistance accounting for variability of actual material properties, structural dimensions and workmanship, and uncertainty in the prediction of resistance and we recommend accepting the work as compliant with the original design intent.

		Project:	BRIDGE OVER WHITE RIVER	Page No:	1	Sheets:	4
By: BJB	Date: 8/27/19	Title: Pier 1 • Delayed concrete pour review.					
Check:	Date:						

Cap Geometry:

Cap Depth = 11.000' = 132.000" (Maximum Depth - worst case)
 Cap Width = 8.500' = 102.000"
 First Pour = 3.333' = 40.000" → $I_g = 544,000 \text{ in}^4$
 Second Pour = 7.667' = 92.000"

Beam Length = 17.750' = 213.000" (Concrete Spans)
 Beam Length = 21.000' = 252.000" (Steel Falsework Spans)

Column to Column Spacing = 14.500'

Column Diameter = 6.500'

Assume support at = 0.250 of Column diameter

Concrete:

Concrete Unit Weight = 0.150 kcf (Design)

Concrete Unit Weight = 0.145 kcf (Modulus)

Compressive Strength (f'_c) = 3.50 ksi

Modulus of Elasticity (E_c) = 3,814.69 kip/in (5.4.2.4-1)

Reinforcement:

Modulus of Elasticity (E_s) = 29,000.00 ksi

Yield Strength (F_y) = 60.00 ksi

$n = 7.6$

Falsework:

Main Beams = W36x150 → $I = 18,080 \text{ in}^4$

Bars		
US	db	As
#3	0.375	0.11
#4	0.500	0.20
#5	0.625	0.31
#6	0.750	0.44
#7	0.875	0.60
#8	1.000	0.79
#9	1.128	1.00
#10	1.270	1.27
#11	1.410	1.56

		Project: BRIDGE OVER WHITE RIVER	Page No: 2	Sheets: 4
By: BJB	Date: 8/27/19	Title: Pier 1		
Check:	Date:	• Delayed concrete pour review.		

Strength Based:

Partial Cap:

Bottom of cap is poured and fully cured. Then it supports the remaining pour as simply supported beam.

$$W_{\text{Concrete}} = 14.03 \text{ kips/ft}$$

$$M_{\text{Concrete}} = 341.128 \text{ k}\cdot\text{ft} \quad (4 \text{ Span Continuous} - 0.0772wl^2)$$

$$\text{Bottom Reinforcement} = 12 @ \#11$$

$$\text{Bar Diameter} = 1.410"$$

$$A_{s\text{Bar}} = 1.560 \text{ in}^2$$

$$A_{s\text{Total}} = 18.720 \text{ in}^2$$

Reinforcement Stress:

Full Cap On Bottom 3'-4" Section:

$$b = 102.000"$$

$$d = 36.045"$$

$$X = 8.729"$$

$$j \cdot d = 33.135" \quad j \times d = d - \frac{x}{3}$$

$$f_s = 6.60 \text{ ksi} \quad f_s = \frac{M}{A_s \times j \times d}$$

Full Cap Instantaneous Pour:

$$b = 102.000"$$

$$d = 128.045"$$

$$X = 17.556"$$

$$j \cdot d = 122.193"$$

$$f_s = 1.79 \text{ ksi}$$

 PARSONS		Project: BRIDGE OVER WHITE RIVER	Page No: 3	Sheets: 4
By: BJB	Date: 8/27/19	Title: Pier 1 • Delayed concrete pour review.		
Check:	Date:			

Two - Stage Cap Pour:

Stage 1:

- 3'-4" of cap is poured "plastic".
- Entire load is taken by the falsework.

Pour is delayed, and the concrete section obtains some unknown capacity and therefore attracts some stress.

Stage 2:

- Remainder of the cap is poured "plastic".
 - Load is shared by the concrete and the falsework.
- Deflections between falsework and concrete need to be equal.

Falsework is removed and the load taken by the falsework is transferred back to the entire cap section.

Assumptions:

- Beam theory for all elements.
- Concrete moments/deflections are based on equally distributed load using a 4-span continuous beam.
- Steel moments/deflections are based on equally distributed load using a 3-span continuous beam.
- In the cantilever section, the steel moments/deflections are based on a fixed end cantilever.

It is anticipated a continuous beam model considering the stiffness of the columns and end overhangs will reduce these moments and therefore this a conservative approximation.

The Modulus of the concrete when the second pour is started/end is unknown and varies. Therefore the results of a number different Moduli and therefore strengths are considered. Ec of 0% produces the same results as the as "designed" instantaneous pour.

			Project: BRIDGE OVER WHITE RIVER	Page No: 4	Sheets: 4
By: BJB	Date: 8/27/19	Title: Pier 1 • Delayed concrete pour review.			
Check:	Date:				

End Continuous Spans:

E _{concrete} (kip/in)	Load Distribution		Deflections			M _{concrete} f _s		M _{concrete} f _s			f _s - Total	
	Concrete	Steel	Concrete	FW	k•ft	f _s	Concrete	k•ft	f _s			
	(kips/ft)	(kips/ft)										
0%	0.0	0.00	9.78	0.519"	0.519"	0.0	0.00 ksi	14.03 kips/ft	341.1	1.79 ksi	1.79 ksi	
10%	381.5	4.41	5.36	0.285"	0.285"	107.3	2.08 ksi	9.61 kips/ft	233.8	1.23 ksi	3.30 ksi	
20%	762.9	6.08	3.69	0.196"	0.196"	147.9	2.86 ksi	7.94 kips/ft	193.2	1.01 ksi	3.87 ksi	
30%	1,144.4	6.96	2.82	0.150"	0.150"	169.2	3.27 ksi	7.07 kips/ft	171.9	0.90 ksi	4.18 ksi	
40%	1,525.9	7.50	2.28	0.121"	0.121"	182.4	3.53 ksi	6.53 kips/ft	158.8	0.83 ksi	4.36 ksi	
50%	1,907.3	7.87	1.91	0.101"	0.101"	191.4	3.70 ksi	6.16 kips/ft	149.7	0.79 ksi	4.49 ksi	
95%	3,624.0	8.66	1.11	0.059"	0.059"	210.7	4.08 ksi	5.36 kips/ft	130.5	0.68 ksi	4.76 ksi	
							↑					↑
							Stress Prior to Faslework Removal					Final Stress

Middle Cantilevers:

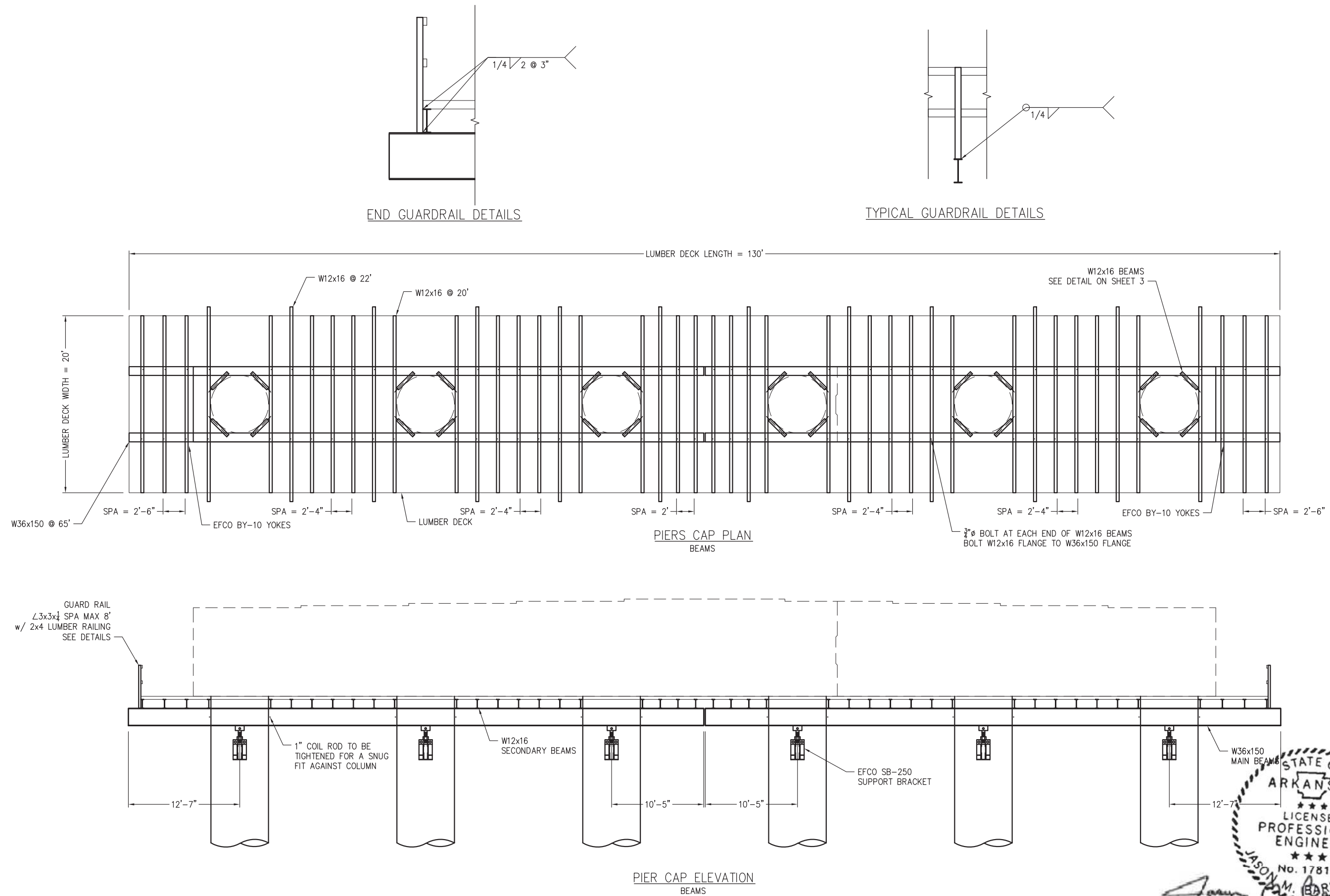
E _{concrete} (kip/in)		Load Distribution		Deflections		M _{concrete} f _s		M _{concrete} f _s		f _s - Total		
		Concrete (kips/ft)	Steel (kips/ft)	Concrete	FW	k•ft		Concrete	k•ft			
0%	0.0	0.00	9.78	0.587"	0.587"	0.0	0.00 ksi	14.03 kips/ft	341.1	1.79 ksi	1.79 ksi	
10%	381.5	4.71	5.06	0.304"	0.304"	114.6	2.22 ksi	9.31 kips/ft	226.5	1.19 ksi	3.41 ksi	
20%	762.9	6.36	3.41	0.205"	0.205"	154.8	2.99 ksi	7.66 kips/ft	186.3	0.98 ksi	3.97 ksi	
30%	1,144.4	7.19	2.58	0.155"	0.155"	175.0	3.39 ksi	6.83 kips/ft	166.1	0.87 ksi	4.26 ksi	
40%	1,525.9	7.71	2.06	0.124"	0.124"	187.6	3.63 ksi	6.31 kips/ft	153.5	0.81 ksi	4.43 ksi	
50%	1,907.3	8.04	1.73	0.104"	0.104"	195.7	3.79 ksi	5.98 kips/ft	145.5	0.76 ksi	4.55 ksi	
95%	3,624.0	8.77	1.01	0.060"	0.060"	213.3	4.13 ksi	5.26 kips/ft	127.9	0.67 ksi	4.80 ksi	
							↑					↑
							Stress Prior to Faslework Removal					Final Stress

Assumed Concrete Modulus (E _c) at Time of Placement of the remaining Concrete	Stress in the Reinforcement	
	End Continuous Spans	Middle Cantilevers
0% E _c	1.79 ksi	1.79 ksi
10% E _c	3.30 ksi	3.41 ksi
20% E _c	3.87 ksi	3.97 ksi
30% E _c	4.18 ksi	4.26 ksi
40% E _c	4.36 ksi	4.43 ksi
50% E _c	4.49 ksi	4.55 ksi
95% E _c	4.76 ksi	4.80 ksi

← Same as a one stage "instantaneous" pour

<u>A</u>	8/6/18	NO CHANGES THIS SHEET	JMB	CSG
<u>A</u>	07/23/18	SUPPORT BRACKETS	CT	JMB
<u>A</u>	01/11/18	NO CHANGES THIS SHEET	CT	JMB
No	DATE	REMARKS	BY	CHECKED

ISSUE DATE: 8/10/2018 C:\Users\jbarkhimer\ShareFile\Personal Folders\WIP-JMB\Pier Cap 1 and 2 Formwork R3.dwg



Page 21 of 75

~~Aug 10, 2018~~

PROJECT NO. BB0610
CJMCC 0048-16

2/7

PIER FORMWORK

WHITE RIVER BRIDGE REPLACEMENT

SCALE	REVIEWED	
	JMB	
NTS	DATE	12/28/17
		1/2/18

PARSONS | **Mahan**
Joint Venture

Notes:

1. For "Pier Notes", Sections and additional details, see sheet 56766.
2. Anchor bolts for Unit 3 shall not be set until the seismic isolation bearing shop drawings are approved. Bearing seat elevations shown are estimated. Actual values are to be determined by the Contractor based on approved seismic isolation bearing shop drawings. Anchor bolt layout is not shown. Actual locations shall be based on approved seismic isolation bearing shop drawings.
3. No lap splice will be allowed for bars C101.



JACOBS

DESIGNED BY: SSS DATE: 08/07/2016 SCALE: 1"=10'
BRIDGE NO. 07343 DRAWING NO. 56766

Summary of Mill Certs for Pier 1 Pier Cap
White River Bridge

Size	Weight (lbs)	HEAT	Yield (psi)	HEAT	Yield (psi)	HEAT	Yield (psi)
#11*	8,458	5717604902	75,180	5717605502	79,240	5717605603	75,440
#7	5,393	5717751602	85,400	B701, B702 & B703 BARS IN VERTICAL FACE			
#6	14,808	5717747302	77,730	5717788502	81,760	B601 & B602 STIRRUPS	

***B1101, B1102 & B1103 - BOTTOM MATT**



SUBMITTAL TRANSMITTAL

Parsons-Mahan JV
406762-White River Bridge Replacement

DATE: 12/10/2018
SUBMITTAL#: 566

TO: Colton Cowles, PE
Resident Engineer
Arkansas Department of Transportation
803 Eureka Garden Road
North Little Rock, AR 72117

FROM: Brian Mar, PE
Project Engineer
Parsons-Mahan JV

1499 West 120th Avenue, Suite 200
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PHONE: 501-945-9514

FAX:

EMAIL: Colton.Cowles@ahtd.ar.gov
David.Craig@ahtd.ar.gov

PHONE: 661-212-6005

FAX:

EMAIL: Brian.Mar@parsons.com

Description:

Rebar Mill Certs

Pier 1 and Pier 2 Walls, Columns, Caps

Spec Section:

TOTALS SUBMITTED PER BOL

subNumber	Bridge Element	Bridge Location	Bar Type	Packet Id	BOL	Quantity (lbs)
566.00	COL1	P1	Hoops	170	9003	155.83
566.00	COL1	P2	Hoops	173	8999	155.83
566.00	COL2	P1	Hoops	170	9003	155.83
566.00	COL2	P2	Hoops	173	8999	155.83
566.00	COL3	P1	Hoops	170	9003	155.83
566.00	COL3	P2	Hoops	173	8999	155.83
566.00	COL4	P1	Hoops	170	9003	155.83
566.00	COL4	P2	Hoops	173	8999	155.83
566.00	COL5	P1	Hoops	170	9003	155.83
566.00	COL5	P2	Hoops	173	8999	155.83
566.00	COL6	P1	Hoops	170	9003	155.83
566.00	COL6	P2	Hoops	173	8999	155.83
566.00	COL1	P1	Spiral	209	22432	433.50
566.00	COL1	P1	Spiral	230	22121	3,964.00
566.00	COL1	P2	Spiral	231	22167	3,964.00
566.00	COL2	P1	Spiral	209	22432	433.50
566.00	COL2	P1	Spiral	230	22121	3,964.00
566.00	COL2	P2	Spiral	231	22167	3,964.00
566.00	COL3	P1	Spiral	209	22432	433.50
566.00	COL3	P1	Spiral	230	22121	3,964.00
566.00	COL3	P2	Spiral	231	22167	3,964.00
566.00	COL4	P1	Spiral	209	22432	433.50
566.00	COL4	P1	Spiral	230	22121	3,964.00
566.00	COL4	P2	Spiral	231	22167	3,964.00
566.00	COL5	P1	Spiral	209	22432	433.50
566.00	COL5	P1	Spiral	230	22121	3,964.00
566.00	COL5	P2	Spiral	231	22167	3,964.00
566.00	COL6	P1	Spiral	209	22432	433.50
566.00	COL6	P1	Spiral	230	22121	3,964.00
566.00	COL6	P2	Spiral	231	22167	3,964.00
566.00	CAP	P1	Substructure	229	9741	36,145.00
566.00	CAP	P2	Substructure	183	9464	28,741.00
566.00	CAP	P2	Substructure	205	9554	7,404.00
566.00	WALL	P1	Substructure	213	9658	12,706.00
566.00	WALL	P1	Substructure	214	9634	45,272.00
566.00	WALL	P1	Substructure	215	9642	45,169.00
566.00	WALL	P1	Substructure	216	9651	46,128.00
566.00	WALL	P1	Substructure	229	9741	2,320.00
566.00	WALL	P2	Substructure	175	9296	46,128.00
566.00	WALL	P2	Substructure	176	28351108	47,397.00
566.00	WALL	P2	Substructure	177	28351109	47,294.00
566.00	WALL	P2	Substructure	180	9356	911.00
566.00	WALL	P2	Substructure	182	9396	7,546.00
566.00	WALL	P2	Substructure	210	9523	240.00
566.00	COL1	P1	Ties	207	9440	2,371.00
566.00	COL1	P1	Vertical	170	9003	6,025.00
566.00	COL1	P2	Vertical	173	8999	6,025.00



Straight Bill of Lading

PROGRESS ROAD COLLIERVILLE, TN 38017 US

RECEIVED, subject to the classification and tariffs in effect on the date of the issue of this Bill of Lading.

BOL No. 2835-0000009741

Shipment Doc. No. 10243838

Project: AHTD BB0610 PRAIRIE COUNTY

The property described below, in apparent good order, except as noted (contents and condition of contents of package unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said description, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification, in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CONSIGNEE TO
DT READ STEEL COMPANY
JOB AR AHTD BB0610 PRAIRIE CO
SR 40 NE OF DOWNS RD ACROSS WHITE
HAZEN, AR, 72064

INVOICE TO
DT READ STEEL COMPANY
JOB AR AHTD BB0610 PRAIRIE CO
1751 WEST ROAD
CHESAPEAKE, VA, 23323-6430

SHIP DATE
23-OCT-18

CUST.ACCOUNT NO
100725275

APPROVAL CODE
KGARMON

CONTRACT
40075947

CARRIER: 2835 GERDAU AMERISTEEL US INC
DESTINATION: SEE CONSIGNED TO
ROUTE: T-2835-AR-HAZEN

CAR / VEHICLE INITIALS:

DELIVERY ADDRESS: SEE CONSIGNED TO

DELIVERY CARRIER: 2835 GERDAU AMERISTEEL US INC

SPECIAL INSTRUCTIONS: * MILL CERTS REQUIRED WITH SHIPMENTS* BARLISTS, BOL'S AND MILL CERTS MUST BE EMAILED TO CASANDRA GRIFFIN AT CASANDRA@DTREADSTEEL.COM AND TO SHAWN DANAHER AT Shawn@dtreadsteel.com @ TIME OF DELIVERY. Site Contacts: Jarrod Pence @ 757-435-3317

Freight Charges are to be PREPAID, unless
marked Collect, Check Box if Collect. []

CTRL CODE	PRODUCT	DESCRIPTION	GRADE BUNDLE ID	MILL	LENGTH	CUST PO # HEAT / BATCH	SALES ORDER # WEIGHT (LB)	ITEM # WEIGHT (KG)	DELIVERY # PCS	ITEM #
BLJ5P7	BLJ5P7	FABRICATION REBAR Per Release 543 Control Code J5P7 PIER 1 - CAP - PLAIN	60 (420)		0	2017-0001-001	7110993	20	8113916188	10
				2835		J5P70000/00	5,317 LB	2,412 KG		
		SUBTOTAL					5,317 LB	2,412 KG		
BLJ5P7	BLJ5P7	FABRICATION REBAR Per Release 543 Control Code J5P7 PIER 1 - CAP - PLAIN	60 (420)		0	2017-0001-001	7110993	30	8113916188	20
				2835		J5P70000/00	8,458 LB	3,836 KG		
		SUBTOTAL					8,458 LB	3,836 KG		
BLJ5P7	BLJ5P7	FABRICATION REBAR Per Release 543 Control Code J5P7 PIER 1 - CAP - PLAIN	60 (420)		0	2017-0001-001	7110993	40	8113916188	30
				2835		J5P70000/00	5,393 LB	2,446 KG		
		SUBTOTAL					5,393 LB	2,446 KG		

Received by (Consignee): _____ Date: _____

Print Name : _____

Shippers Total
Net Weight (LB)

38,465

AGENT

Shippers Total
Net Weight (KG)

17,447

DATE

Gerda Corporation Shipper, per
Permanent post office address of shipper

PROGRESS ROAD COLLIERVILLE TN 38017 US

Time of Day 10/23/2018 09:47:37

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement. The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

GERDAU
(SIGNATURE OF CONSIGNOR)

NOTE: To obtain allowance for shortage or damage, customer must advise shipper within 5 days of receipt of material. Customer has absolutely no permission to refabricate material which will result in a back charge to shipper without written consent of shipper.
Gerda warrants the performance of the FIBC bags only to the point of initial removal from the delivery trailer by Customer. Thereafter, Customer fully releases and discharges Gerda, its officers, agents and employees from any liability or any loss, cost, damage, expense, injury or death arising from or in any manner connected with Customer's receipt and use of the FIBC bags.

Left Gerda

Arrived on Jobsite

Departed Jobsite

Driver / Date

10243838

Time ____ : ____ AM / PM

____ : ____ AM / PM

____ : ____ AM / PM



Straight Bill of Lading

PROGRESS ROAD COLLIERVILLE, TN 38017 US

RECEIVED, subject to the classification and tariffs in effect on the date of the issue of this Bill of Lading.

BOL No. 2835-0000009741

Shipment Doc. No. 10243838

Project: AHTD BB0610 PRAIRIE COUNTY

The property described below, in apparent good order, except as noted (contents and condition of contents of package unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery as said description, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification, in effect on the date hereof, if this is a rail or rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation or this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CONSIGNEE TO
DT READ STEEL COMPANY
JOB AR AHTD BB0610 PRAIRIE CO
SR 40 NE OF DOWNS RD ACROSS WHITE
HAZEN, AR, 72064

INVOICE TO
DT READ STEEL COMPANY
JOB AR AHTD BB0610 PRAIRIE CO
1751 WEST ROAD
CHESAPEAKE, VA, 23323-6430

SHIP DATE
23-OCT-18
CUST.ACCOUNT NO
100725275

APPROVAL CODE
KGARMON
CONTRACT
40075947

CARRIER: 2835 GERDAU AMERISTEEL US INC
DESTINATION: SEE CONSIGNED TO
ROUTE: T-2835-AR-HAZEN

CAR / VEHICLE INITIALS:
DELIVERY ADDRESS: SEE CONSIGNED TO

DELIVERY CARRIER: 2835 GERDAU AMERISTEEL US INC
SPECIAL INSTRUCTIONS: * MILL CERTS REQUIRED WITH SHIPMENTS* BARLISTS, BOL'S AND MILL CERTS MUST BE EMAILED TO CASANDRA GRIFFIN AT CASANDRA@DTREADSTEEL.COM AND TO SHAWN DANAHER AT Shawn@dtreadsteel.com @ TIME OF DELIVERY. Site Contacts: Jarrod Pence @ 757-435-3317

Freight Charges are to be PREPAID, unless
marked Collect. Check Box if Collect. []

CTRL CODE	PRODUCT	DESCRIPTION	GRADE BUNDLE ID	MILL	LENGTH	CUST PO # HEAT / BATCH	SALES ORDER # WEIGHT (LB)	ITEM # WEIGHT (KG)	DELIVERY # PCS	ITEM #
BLJ5P7	BLJ5P7	FABRICATION REBAR Per Release 543 Control Code J5P7 PIER 1 - CAP - PLAIN	60 (420)		0	2017-0001-001	7110993	50	8113916188	40
				2835		J5P70000/00	1,678 LB	761 KG		
							1,678 LB	761 KG		
BLJ5P7	BLJ5P7	FABRICATION REBAR Per Release 543 Control Code J5P7 PIER 1 - CAP - PLAIN	60 (420)		0	2017-0001-001	7110993	60	8113916188	50
				2835		J5P70000/00	491 LB	223 KG		
							491 LB	223 KG		
BLJ5P7	BLJ5P7	FABRICATION REBAR Per Release 543 Control Code J5P7 PIER 1 - CAP - PLAIN	60 (420)		0	2017-0001-001	7110993	70	8113916188	60
				2835		J5P70000/00	14,808 LB	6,717 KG		

Received by (Consignee): _____		Date: _____		Shippers Total Net Weight (LB)		38,465		AGENT	
Print Name : _____				Shippers Total Net Weight (KG)		17,447		DATE	
Gerda Corporation Shipper, per _____ Permanent post office address of shipper PROGRESS ROAD COLLIERVILLE TN 38017 US Time of Day 10/23/2018 09:47:37		Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement. The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. GERDAU (SIGNATURE OF CONSIGNOR)		NOTE: To obtain allowance for shortage or damage, customer must advise shipper within 5 days of receipt of material. Customer has absolutely no permission to refabricate material which will result in a back charge to shipper without written consent of shipper. Gerda warrants the performance of the FIBC bags only to the point of initial removal from the delivery trailer by Customer. Thereafter, Customer fully releases and discharges Gerda, its officers, agents and employees from any liability or any loss, cost, damage, expense, injury or death arising from or in any manner connected with Customer's receipt and use of the FIBC bags.					

Left Gerda		Arrived on Jobsite		Departed Jobsite		Driver / Date	
Time _____ : _____ AM / PM		_____ : _____ AM / PM		_____ : _____ AM / PM		10243838	



October 23, 2018

D T Read Steel Co

Subject: AHTD BB0610 Prairie Co Release: 665,543

This letter is in reference to the reinforcing steel shipping to your facility for the subject project on 10/24/2018. I certify that the reinforcing steel is from a Department approved Producer, complies with AHTD and applicable AASHTO specifications, and was fabricated in accordance with AHTD plans and specifications or approved bar lists. This material was melted and manufactured in the United States of America and complies with "Buy America" requirements.

I have attached our bill of lading, along with mill certificates from the mill producer from whose material we fabricated this material.

Fabricator: Gerdau
155 Progress Road
Collierville, TN 38017

Mill: Gerdau-Knoxville Steel Mill 1919 Tennessee Ave NW Knoxville, TN 37921
ASTM A615/A615M-15 E1
GR 60 AASHTO M31

BAR WEIGHTS	HEAT NUMBERS		
	PLAIN	PLAIN	PLAIN
NO.18 (57mm)			
NO.14 (43mm)			
NO.11 (36mm) 8,458 LBS	5717604902	5717605502	5717605603
NO.10 (32mm)			
NO.9 (29mm) 5,317 LBS	5717416302		
NO.8 (25mm)			
NO.7 (22mm) 5,393 LBS	5717751602		
NO. 6 (19mm) 14,808 LBS	5717747302	5717788502	
5K (16mm)			
NO.5 (16mm) 1678 LBS	5717769802	5717769902	
4K (13mm)			
NO.4 (13mm) 2811 LBS	5717741602	5717781502	5614557402

Size 4: 2811 lbs
Size 5: 1678 lbs
Size 6: 14,808 lbs

Memphis Reinforcing Steel
155 Progress Rd.
Collierville, TN 38017-
Phone: (901)853-8250 FAX: (901)853-4177

JOB NUMBER 40075947	RELEASE NUMBER 543	REQ. DELIVERY DATE	PAGE 1 of 2
JOB NAME AHTD BB0610 PRAIRIE COUNTY			CC J5P7
CUSTOMER DT READ STEEL COMPANY			BY CJR

MATERIAL TYPE				REFERENCE				DRAWING ID				DESCRIPTION											
Rebar, Grade 60, Black				SHEET 92-96				56769				PIER 1 - CAP - PLAIN											
Itm	Qty	Size	Length	Mark	Shape	LB	A	B	C	D	E	F	G	H	I	J	K	O	BC				

AR STATE PAPERWORK & MILL CERTS REQUIRED WITH DELIVERY.
AHTD BB0610 PRAIRIE COUNTY, AR

1	12	11	45-00	B1101	1	2869	1-07	43-05										1-023		ED
2	12	11	44-02	B1103	1	2816	1-07	42-07										1-023		ED
3	12	11	43-06	B1102		2773														00
36						8458														
4	12	9	44-00	B901	1	1795	1-03	42-09										0-113		ED
5	12	9	43-07	B903	1	1778	1-03	42-04										0-113		ED
6	12	9	42-09	B902		1744														00
36						5317														
7	20	7	11-11	B704	17	487		1-02	9-062	1-02										ED09
8	18	7	10-05	B703	17	383		1-02	8-002	1-02										ED09
9	18	7	42-07	B702		1567														00
10	36	7	40-02	B701		2956														00
92						5393														
11	222	6	32-04	B602	T2	10780	1-00	9-08	5-06	9-08	5-06		1-00							ED20
12	108	6	24-10	B601	17	4028		9-08	5-06	9-08										ED08
330						14808														
13	96	5	10-06	B504	17	1051		1-03	8-00	1-03										ED06
14	9	5	25-09	B501		242														00
15	9	5	18-03	B503		171														00
16	9	5	14-10	B502		139														00
17	9	5	8-00	B505		75														00
132						1678														
18	140	4	5-03	B401	17	491		1-04	2-07	1-04										AB05
140						491														

Total Weight: 36,145 LB

Longest Length: 45-00

WEIGHT SUMMARY

TOTAL				STRAIGHT			LIGHT BENDING			HEAVY BENDING		
SIZE	ITEMS	PIECES	LB	ITEMS	PIECES	LB	ITEMS	PIECES	LB	ITEMS	PIECES	LB
Rebar, Grade 60, Black												
4	1	140	491	0	0	0	0	0	0	1	140	491
5	5	132	1,678	4	36	627	0	0	0	1	96	1,051
6	2	330	14,808	0	0	0	1	222	10,780	1	108	4,028
7	4	92	5,393	2	54	4,523	0	0	0	2	38	870
9	3	36	5,317	1	12	1,744	0	0	0	2	24	3,573
11	3	36	8,458	1	12	2,773	0	0	0	2	24	5,685
	18	766	36,145	8	114	9,667	1	222	10,780	9	430	15,698



US-ML-KNOXVILLE
1919 TENNESSEE AVENUE N. W.
KNOXVILLE, TN 37921
USA

MADE IN UNITED STATES

Page 1/1

CUSTOMER SHIP TO

DT READ STEEL COMPANY
SR 40 NE OF DOWNS RD ACROSS WH
HAZEN, AR 72064
USA

CUSTOMER BILL TO

DT READ STEEL COMPANY
1751 WEST ROAD
CHESAPEAKE, VA 23323-6430
USA

GRADE
60 (420) TMX

SHAPE / SIZE
REBAR / #6 (19MM)

LENGTH

FABRICATION PLANT
US-FB-MEMPHIS
155 PROGRESS ROAD
COLLIERSVILLE, TN 38017
USA

SALES ORDER
7110993/000070

SPECIFICATION / DATE or REVISION
ASTM A615/A615M-15 E1

CUSTOMER PURCHASE ORDER NUMBER
2017-0001-001

BILL OF LADING
2835-0000009741

DATE
10/23/2018

HEAT/BATCH	C %	Mn %	P %	S %	Si %	Cu %	Ni %	Cr %	Mo %	Sn %	V %	CEqvA 0 %	YS PSI	YS MPa	UTS PSI	UTS MPa	G/L Inches	G/L mm	Elong. %	BendTe s	%Light %	Def Hgt Inches	Def Gap Inches	DefSpac Inches
5717747302 5717788502	0.33 0.32	0.58 0.58	0.009 0.006	0.061 0.055	0.20 0.20	0.36 0.40	0.10 0.19	0.09 0.15	0.009 0.039	0.015 0.008	0.003 0.003	0.45 0.45	77730 81760	536 564	96760 99910	667 689	8.000 8.000	200.0 200.0	13.80 13.80	OK OK	4.33 4.13	0.056 0.050	0.103 0.106	0.470 0.471

COMMENTS / NOTES

The above figures are certified chemical and physical test records as contained in the permanent records of company. We certify that these data are correct and in compliance with specified requirements. This material, including the billets, was melted and manufactured in the USA. CMTR complies with EN 10204 3.1.

Bhaskar

BHASKAR YALAMANCHILI
QUALITY DIRECTOR

Jim Hall

JIM HALL
QUALITY ASSURANCE MGR.



US-ML-KNOXVILLE
1919 TENNESSEE AVENUE N. W.
KNOXVILLE, TN 37921
USA

MADE IN UNITED STATES

Page 1/1

CUSTOMER SHIP TO

DT READ STEEL COMPANY
SR 40 NE OF DOWNS RD ACROSS WH
HAZEN, AR 72064
USA

CUSTOMER BILL TO

DT READ STEEL COMPANY
1751 WEST ROAD
CHESAPEAKE, VA 23323-6430
USA

GRADE
60 (420) TMX

SHAPE / SIZE
REBAR / #7 (22MM)

LENGTH

FABRICATION PLANT
US-FB-MEMPHIS
155 PROGRESS ROAD
COLLIERVILLE, TN 38017
USA

SALES ORDER
7110993/000040

SPECIFICATION / DATE or REVISION
ASTM A615/A615M-15 E1

CUSTOMER PURCHASE ORDER NUMBER
2017-0001-001

BILL OF LADING
2835-0000009741

DATE
10/23/2018

HEAT/BATCH	C %	Mn %	P %	S %	Si %	Cu %	Ni %	Cr %	Mo %	Sn %	V %	CEqvA %	YS PSI	YS MPa	UTS PSI	UTS MPa	G/L Inches	G/L mm	Elong. %	BendTe s	%Light %	Def Hgt Inches	Def Gap Inches	DefSpac Inches
5717751602	0.42	0.58	0.015	0.059	0.20	0.34	0.09	0.10	0.010	0.005	0.003	0.54	85400	589	109300	754	8.000	200.0	12.00	OK	3.72	0.061	0.124	0.526

COMMENTS / NOTES

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US-ML-KNOXVILLE
1919 TENNESSEE AVENUE N. W.
KNOXVILLE, TN 37921
USA

MADE IN UNITED STATES

Page 1/1

CUSTOMER SHIP TO

DT READ STEEL COMPANY
SR 40 NE OF DOWNS RD ACROSS WH
HAZEN, AR 72064
USA

CUSTOMER BILL TO

DT READ STEEL COMPANY
1751 WEST ROAD
CHESAPEAKE, VA 23323-6430
USA

GRADE
60 (420) TMX

SHAPE / SIZE
REBAR / #11 (36MM)

LENGTH

FABRICATION PLANT
US-FB-MEMPHIS
155 PROGRESS ROAD
COLLIERVILLE, TN 38017
USA

SALES ORDER
7110993/000030

SPECIFICATION / DATE or REVISION
ASTM A615/A615M-15 E1

CUSTOMER PURCHASE ORDER NUMBER
2017-0001-001

BILL OF LADING
2835-0000009741

DATE
10/23/2018

HEAT/BATCH	C %	Mn %	P %	S %	Si %	Cu %	Ni %	Cr %	Mo %	Sn %	V %	CEqvA 0 %	YS PSI	YS MPa	UTS PSI	UTS MPa	G/L Inches	G/L mm	Elong. %	BendTe s	%Light %	Def Hgt Inches	Def Gap Inches	DefSpac Inches
5717604902	0.32	0.53	0.018	0.064	0.16	0.44	0.13	0.13	0.030	0.009	0.003	0.44	75180	518	98500	679	8.000	200.0	13.80	OK	5.29	0.082	0.182	0.838
5717605502	0.34	0.54	0.012	0.051	0.20	0.47	0.11	0.14	0.026	0.005	0.004	0.47	79240	546	101640	701	8.000	200.0	13.80	OK	4.71	0.082	0.180	0.838
5717605603	0.36	0.52	0.008	0.050	0.19	0.42	0.12	0.13	0.028	0.004	0.003	0.47	75440	520	98760	681	8.000	200.0	13.80	OK	4.76	0.082	0.180	0.838

COMMENTS / NOTES

The above figures are certified chemical and physical test records as contained in the permanent records of company. We certify that these data are correct and in compliance with specified requirements. This material, including the billets, was melted and manufactured in the USA. CMTR complies with EN 10204 3.1.

Bhaskar

BHASKAR YALAMANCHILI
QUALITY DIRECTOR

Jim Hall

JIM HALL
QUALITY ASSURANCE MGR.



Joint Venture

1499 West 120th Avenue, Suite 200, Westminster, CO 80234

September 6, 2019

Mr. Colton Cowles, P.E.
Resident Engineer
10324 Interstate 30
P.O. Box 2261
Little Rock, AR 72203-2261

Re: Job No. BB0610 FAP NHPP-40-4(81)200 White River Structure and Approaches
Pier 1 Pier Cap Potential Cold Joint

Dear Mr. Cowles:

We are in receipt of your letter dated September 4, 2019, responding to RFI 075 regarding a potential cold joint in the Pier 1 cap. That RFI was submitted in response to concerns raised by ArDOT project personnel regarding an unforeseeable suspension of work that occurred during the concrete placement operations on August 23, 2019. The RFI included an engineering analysis confirming that, even if the suspension resulted in a cold joint – and there is no evidence that it did – this added construction joint would not represent a significant structural deficiency in the pier cap. In spite of this engineering analysis, your September 4th letter indicates that the pier cap should be removed and replaced on the basis that specifications related to placement practices and time limitations between lifts were not followed. Your letter, which includes no engineering basis for this directive, further states that the removal and replacement are to be performed at no additional cost to the Department.

As an initial matter, the circumstances that led to the temporary suspension of the concrete placement and the suspected formation of a cold joint must be put in proper context before assigning responsibility for this replacement cost. As you are aware, but fail to acknowledge in your letter, approximately 1½ hours after we started placement operations a thunderstorm with significant lightning activity approached the project site. At the time the decision was made to proceed with the concrete placement the hourly forecast indicated no chance of precipitation at the site over the expected duration of the operations. This forecast was reviewed and discussed with ArDOT inspection personnel prior to starting the pour, and there was concurrence that proceeding with the placement was appropriate given the expected weather conditions. However, after starting, the forecast changed as a storm cell located in northern Arkansas unexpectedly began migrating to the south, towards the site. Once lightning activity approached within 10 miles of the site, for the safety of both our project personnel and ArDOT's, and in accordance with our Site-Specific Accident Prevention Plan and OSHA regulations, we were forced to suspend operations and evacuate the site until this storm passed, some 2+ hours later. As such, this suspension, and any cold joint that resulted from it, are the direct result of an act of God. Damage to the work resulting from acts of God are addressed in Section 107.16 of the Arkansas Standard Specifications for Highway Construction:

107.16 Contractor's Responsibility for Work. Until final acceptance of the project by the Engineer, the Contractor shall have the charge and care thereof and shall take every precaution against injury, theft, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries, thefts, or damages to any portion of the work occasioned by any of the above causes before final acceptance, and shall bear the expense thereof **except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, of the public enemy, or of governmental authorities. (Emphasis added.)**

Consequently, in accordance with 107.16, we cannot be held responsible for damage to the work resulting from this storm and there is therefore no contractual basis for your direction to remove and replace it at our expense. If ArDOT elects to have this cap removed and replaced, it must direct us to do so via a Change Order that includes provisions to pay for this extra work.

Further, there is no valid engineering basis for your determination. Visually, while a pour-line is minimally visible along the face of the cap at the approximate vertical location at which the placement was suspended for lightning, visible pour lines such as this are common in large-volume placements, even when no temporary suspension is encountered. Closer examination reveals there is no honeycombing or physical discontinuity in the formed surface evident along this pour line that typically accompanies formation of a cold joint. This is indicative that the concrete in the lower lift remained plastic at the time the next lift was placed and vibrated into it. This is consistent with reports from our supervisory personnel involved in the decision to re-start the pour, which indicate the lower lift was still plastic and susceptible to penetration with a vibrator at the time the pour was continued. It also must be noted that this mix was retarded to delay initial concrete set by 3 to 4 hours, which further supports the report that the initial lift was still plastic when the subsequent lift was placed.

In addition, a vertical core taken after RFI 075 was submitted further confirms there is no physical evidence of a cold joint within the core at the depth at which the placement was suspended as indicated by the pour line. A picture of this core, which has been retained for inspection by ArDOT at Terracon's office in Bryant Arkansas, has been attached as Exhibit A. This core indicates homogeneous concrete throughout the depth of the core.

Finally, the RFI as submitted included an engineering analysis based on the worst-case assumption, that being that the initial lift had taken its initial set and formed a de facto construction joint within the cap. This analysis reflected the possible range of values for the "locked-in" stresses resulting from this assumed construction joint, based on varying degrees of set-up within the initial lift. This analysis demonstrates that even at the extreme high-end assumptions of set-up for the concrete, the resultant increase in stresses are negligible. It should also be noted that this analysis assumed the original design strength of 3,500 psi for concrete and did not consider that the actual 28-day

compressive strength for this mix design routinely reaches 9,000 psi, and that early cylinder breaks from the Pier 1 cap indicate the concrete is on track to attain at least double the 28-day design strength (see Exhibit B). Consequently, based on actual observations at the time of placement and subsequent coring and testing, the analysis presented in RFI 075 represents an overly-conservative set of assumptions taken as a worst-case scenario, that nonetheless results in findings that support using the cap as is.

However, your letter fails to provide any meaningful evaluation of this analysis, beyond a general statement that, "...the engineering aspect of introducing a plane of weakness is much more complex than what is addressed in the submittal." While this may be true, the results of the submitted analysis indicate that a more complex analysis is wholly unnecessary and would only yield improved results in terms of the locked-in stresses as compared to the worst-case scenario assumed in RFI 075. We are prepared to perform such an analysis if requested, but such analysis will require approximately 10 days to complete and will require an agreement as to scope and authorization from ArDOT in advance, as this is extra work to our Contract in accordance with Specification Section 107.16 as cited above.

In conclusion, we are completely confident that there are no structural deficiencies within the as-built Pier 1 Cap. Contrary to your letter of September 4, 2019, there is no contractual or engineering basis for your directive to remove and replace the Pier 1 Cap at our expense, and doing so without such justification will only result in Economic Waste both in terms of cost and schedule. The removal and replacement of the cap is estimated to take at least 8 weeks and given the recent history of high-water related suspensions of work at this site in the November through June timeframe, this would very likely result in a delay of up to one year in opening the bridge. Given the cost and schedule implications, we are not prepared to proceed with this extra work without a Change Order that includes reimbursement and an adequate time extension for this work in accordance with 107.16. As you know, structural steel is scheduled to be erected on Pier 1 on this coming Tuesday, September 10, 2019. We intend to proceed with steel erection as scheduled lacking further direction from ArDOT that includes a commitment to pay for impacts associated with an election to remove and replace the cap. Accordingly, please respond to this letter by Close-of-Business Monday, September 9, 2019.

If you would like to further discuss this issue, please contact me at (720) 576-6802

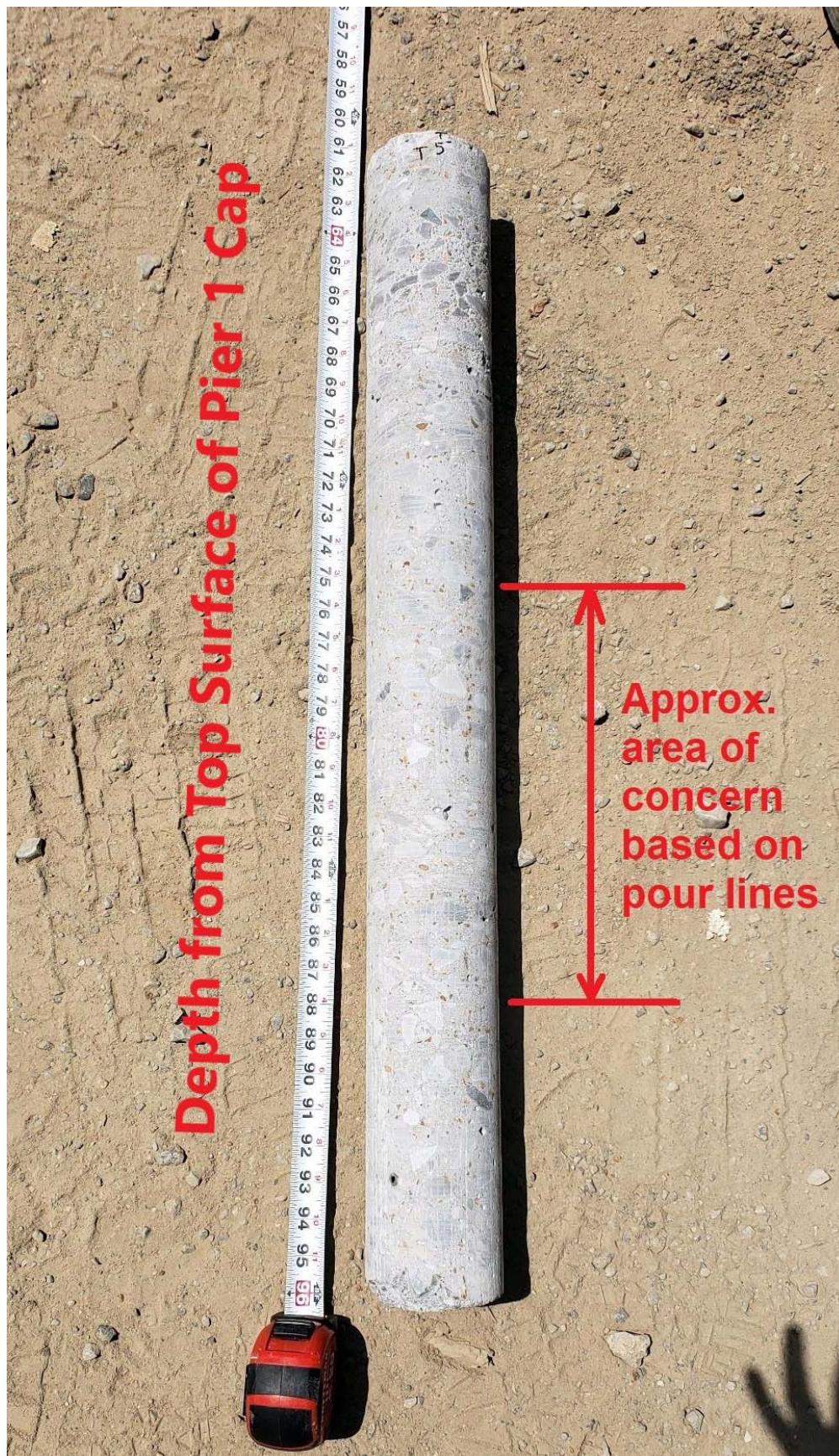
Sincerely,

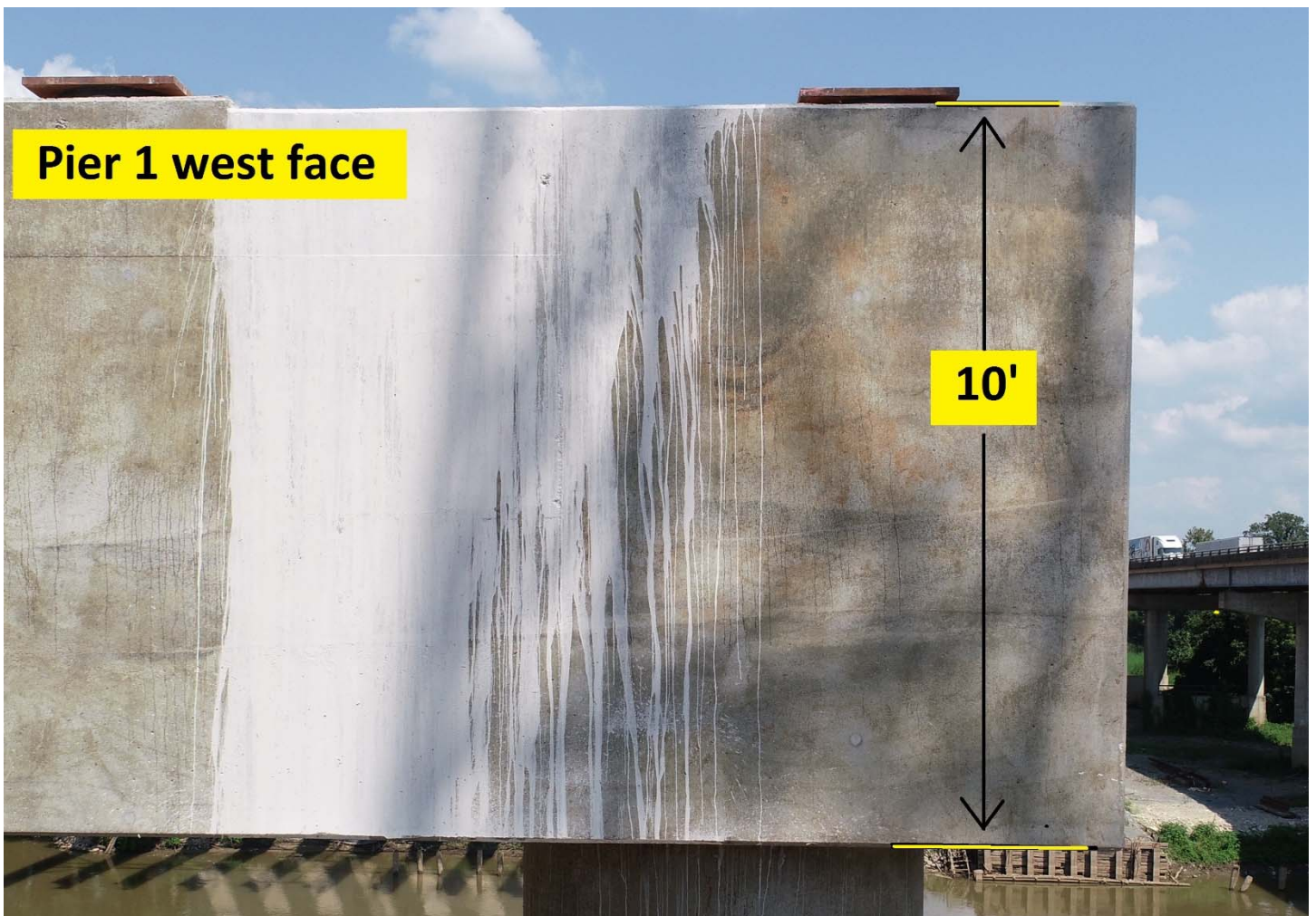
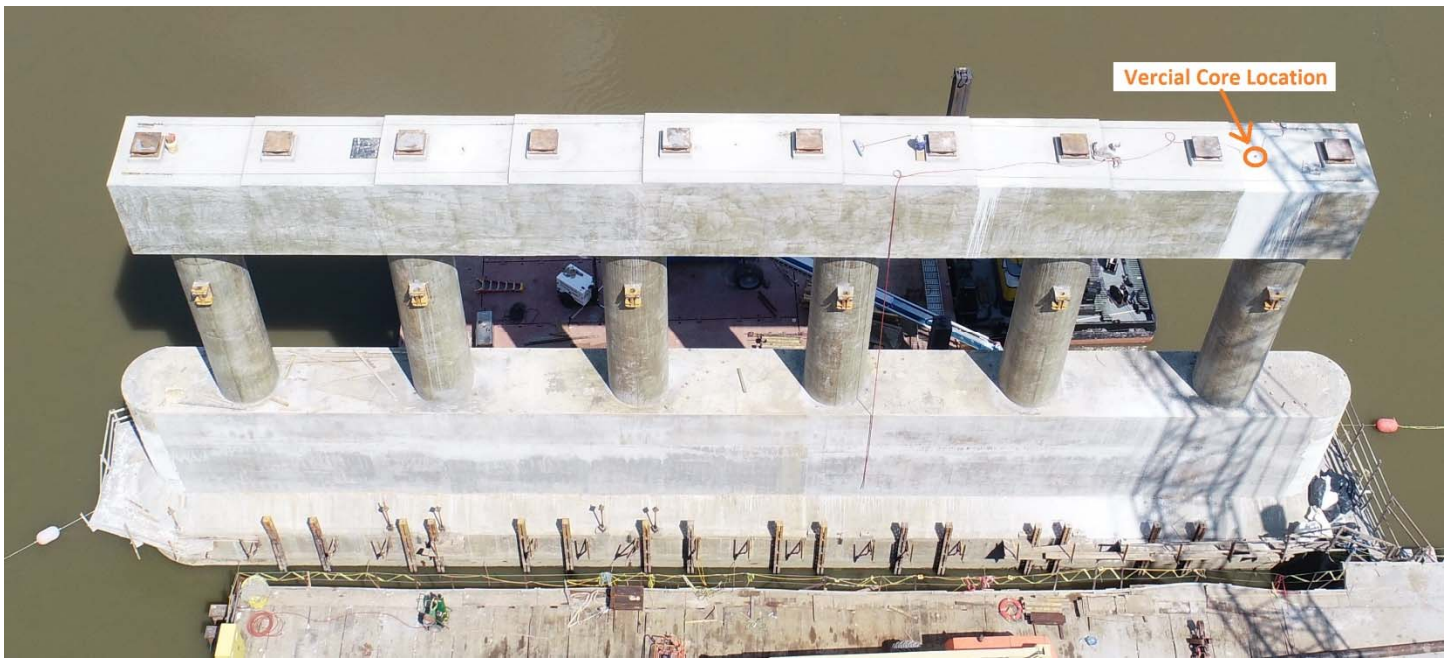
A handwritten signature in blue ink, appearing to read 'MH', followed by a long, horizontal, wavy line.

Michael Hernandez, P.E.
PMJV Project Manager

cc: Mark Trickey, Resident Engineer Office 61

cc: Gary Yancer, Randy Schultz, Tony Geach, Doug McCrae, Kevin Wiley, Megan Forthman of PMJV





CONCRETE COMPRESSIVE STRENGTH TEST REPORT

Terracon

Report Number: 35171017.0255

Service Date: 08/22/19

Report Date: 08/29/19 Revision 1 - 7-day results

Task:

25809 I 30

Bryant, AR 72022-9313

501-847-9292 Reg No: 918015

Client

Parsons-Mahan Joint Venture
Attn: Ivo Yagar
1499 W 120th Ave Ste 200
Westminster, CO 80234-2754

Project

I40 White River Bridge
I-40
Biscoe, AR

Project Number: 35171017

Material Information

Specified Strength: 3,500 psi @ 28 days

Mix ID: Class S w/Fly Ash

Supplier:

Batch Time: 0958

Plant: 5

Truck No.: 273

Ticket No.: 8931

Sample Information

Sample Date: 08/22/19 Sample Time: 2221

Sampled By: Ramiro Perez

Weather Conditions: cloudy, humid

Accumulative Yards: 9 Batch Size (cy): 9

Placement Method: Pump

Water Added Before (gal): 0

Water Added After (gal): 0

Sample Location: 16-4

Placement Location: Pier 1 Cap

Field Test Data

Test	Result	Specification
Slump (in):	4 3/4	4.5 +/- 3.5
Air Content (%):	1.4	
Concrete Temp. (F):	82	
Ambient Temp. (F):	81	
Plastic Unit Wt. (pcf):	151.3	
Yield (Cu. Yds.):		

Laboratory Test Data

Set No.	Specimen ID	Avg Diam. (in)	Area (sq in)	Date Received	Weight (lbs)	Date Tested	Age at Test (days)	Maximum Load (lbs)	Compressive Strength (psi)	Fracture Type	Tested By
1	A	4.00	12.57		8.80	08/26/19	4	54,420	4,330	5	RP
1	B	4.00	12.57		8.88	08/26/19	4	56,630	4,510	3	RP
								Average (4 days)	4,420		
1	C	4.00	12.57		8.84	08/29/19	7	64,280	5,120	2	SKY
1	D	4.00	12.57		8.84	08/29/19	7	67,570	5,380	3	SKY
								Average (7 days)	5,250		
1	E	4.00	12.57			09/19/19	28				
1	F	4.00	12.57			09/19/19	28				
1	G	4.00	12.57			09/19/19	28				

Initial Cure: Onsite Cooler

Final Cure: Moist Room

Comments: Took sample from direct discharge

Samples Made By: Terracon

Services: Obtain samples of fresh concrete at the placement locations (ASTM C-172), perform required field tests and cast, cure, and test compressive strength samples (ASTM C-31, C-39, C-617).

Terracon Rep.: Ramiro Perez

Start/Stop: 0000-1100, 1500-1700

Reported To:

Contractor: Parsons Mahan JV

Report Distribution:

See attached distribution list.

Test Methods: ASTM C 31

PMJV Letter Dated September 6, 2019 Exhibit B

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual sample tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

CONCRETE COMPRESSIVE STRENGTH TEST REPORT

Terracon

Report Number: 35171017.0255

Service Date: 08/22/19

Report Date: 08/29/19 Revision 1 - 7-day results

Task:

25809 I 30

Bryant, AR 72022-9313

501-847-9292 Reg No: 918015

Client

Parsons-Mahan Joint Venture
Attn: Ivo Yagar
1499 W 120th Ave Ste 200
Westminster, CO 80234-2754

Project

I40 White River Bridge
I-40
Biscoe, AR

Project Number: 35171017

Material Information

Specified Strength: 3,500 psi @ 28 days

Mix ID: Class S w/Fly Ash

Supplier:

Batch Time: 1057

Plant: 5

Truck No.: 156

Ticket No.: 8934

Sample Information

Sample Date: 08/22/19 Sample Time: 2318

Sampled By: Ramiro Perez

Weather Conditions: cloudy, humid

Accumulative Yards: 36 Batch Size (cy): 9

Placement Method: Pump

Water Added Before (gal): 0

Water Added After (gal): 0

Sample Location: 16-4

Placement Location: Pier 1 Cap

Field Test Data

Test	Result	Specification
Slump (in):	7	4.5 +/- 3.5
Air Content (%):	0.9	
Concrete Temp. (F):	82	
Ambient Temp. (F):	79	
Plastic Unit Wt. (pcf):	151.0	
Yield (Cu. Yds.):		

Laboratory Test Data

Set No.	Specimen ID	Avg Diam. (in)	Area (sq in)	Date Received	Weight (lbs)	Date Tested	Age at Test (days)	Maximum Load (lbs)	Compressive Strength (psi)	Fracture Type	Tested By
2	A	4.00	12.57		8.84	08/26/19	4	52,950	4,210	3	RP
2	B	4.00	12.57		8.86	08/26/19	4	53,020	4,220	3	RP
								Average (4 days)	4,220		
2	C	4.00	12.57		8.88	08/29/19	7	65,100	5,180	2	SKY
2	D	4.00	12.57		8.90	08/29/19	7	64,080	5,100	5	SKY
								Average (7 days)	5,140		
2	E	4.00	12.57			09/19/19	28				
2	F	4.00	12.57			09/19/19	28				
2	G	4.00	12.57			09/19/19	28				

Initial Cure: Onsite Cooler

Final Cure: Moist Room

Comments: Took sample from direct discharge

Samples Made By: Terracon

Services: Obtain samples of fresh concrete at the placement locations (ASTM C-172), perform required field tests and cast, cure, and test compressive strength samples (ASTM C-31, C-39, C-617).

Terracon Rep.: Ramiro Perez

Start/Stop: 0000-1100, 1500-1700

Reported To:

Contractor: Parsons Mahan JV

Report Distribution:

See attached distribution list.

Test Methods: ASTM C 31

PMJV Letter Dated September 6, 2019 Exhibit B

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CONCRETE COMPRESSIVE STRENGTH TEST REPORT

Terracon

Report Number: 35171017.0255

Service Date: 08/22/19

Report Date: 08/29/19 Revision 1 - 7-day results

Task:

25809 I 30

Bryant, AR 72022-9313

501-847-9292 Reg No: 918015

Client

Parsons-Mahan Joint Venture
Attn: Ivo Yagar
1499 W 120th Ave Ste 200
Westminster, CO 80234-2754

Project

I40 White River Bridge
I-40
Biscoe, AR

Project Number: 35171017

Material Information

Specified Strength: 3,500 psi @ 28 days

Mix ID: Class S w/Fly Ash

Supplier:

Batch Time: 0346

Plant: 5

Truck No.: 271

Ticket No.: 8948

Sample Information

Sample Date: 08/22/19 Sample Time: 0407

Sampled By: Ramiro Perez

Weather Conditions: cloudy,raining

Accumulative Yards: 162 Batch Size (cy): 9

Placement Method: Pump

Water Added Before (gal): 0

Water Added After (gal): 0

Sample Location: 17-1

Placement Location: Pier 1 Cap

Field Test Data

Test	Result	Specification
Slump (in):	5 3/4	4.5 +/- 3.5
Air Content (%):	1.0	
Concrete Temp. (F):	80	
Ambient Temp. (F):	76	
Plastic Unit Wt. (pcf):	151.8	
Yield (Cu. Yds.):		

Laboratory Test Data

Set No.	Specimen ID	Avg Diam. (in)	Area (sq in)	Date Received	Weight (lbs)	Date Tested	Age at Test (days)	Maximum Load (lbs)	Compressive Strength (psi)	Fracture Type	Tested By
3	A	4.00	12.57		8.88	08/26/19	4	47,980	3,820	5	RP
3	B	4.00	12.57		8.88	08/26/19	4	46,430	3,690	5	RP
							Average (4 days)		3,760		
3	C	4.00	12.57		8.84	08/29/19	7	59,580	4,740	2	SKY
3	D	4.00	12.57		8.80	08/29/19	7	62,750	4,990	3	SKY
							Average (7 days)		4,870		
3	E	4.00	12.57			09/19/19	28				
3	F	4.00	12.57			09/19/19	28				
3	G	4.00	12.57			09/19/19	28				

Initial Cure: Onsite Cooler

Final Cure: Moist Room

Comments: Took sample from direct discharge

Samples Made By: Terracon

Services: Obtain samples of fresh concrete at the placement locations (ASTM C-172), perform required field tests and cast, cure, and test compressive strength samples (ASTM C-31, C-39, C-617).

Terracon Rep.: Ramiro Perez

Start/Stop: 0000-1100, 1500-1700

Reported To:

Contractor: Parsons Mahan JV

Report Distribution:

See attached distribution list.

Test Methods: ASTM C 31

PMJV Letter Dated September 6, 2019 Exhibit B

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CONCRETE COMPRESSIVE STRENGTH TEST REPORT

Terracon

Report Number: 35171017.0255

Service Date: 08/22/19

Report Date: 08/29/19 Revision 1 - 7-day results

Task:

25809 I 30

Bryant, AR 72022-9313

501-847-9292 Reg No: 918015

Client

Parsons-Mahan Joint Venture
Attn: Ivo Yagar
1499 W 120th Ave Ste 200
Westminster, CO 80234-2754

Project

I40 White River Bridge
I-40
Biscoe, AR

Project Number: 35171017

Material Information

Specified Strength: 3,500 psi @ 28 days

Mix ID: Class S w/Fly Ash

Supplier:

Batch Time: 0620

Plant: 5

Truck No.: 130

Ticket No.: 8963

Sample Information

Sample Date: 08/22/19 Sample Time: 0641

Sampled By: Ramiro Perez

Weather Conditions: cloudy,sprinkling

Accumulative Yards: 297 Batch Size (cy): 9

Placement Method: Pump

Water Added Before (gal): 0

Water Added After (gal): 0

Sample Location: Lot 17-2

Placement Location: Pier 1 Cap

Field Test Data

Test	Result	Specification
Slump (in):	5	4.5 +/- 3.5
Air Content (%):	1.2	
Concrete Temp. (F):	82	
Ambient Temp. (F):	73	
Plastic Unit Wt. (pcf):	151.4	
Yield (Cu. Yds.):		

Laboratory Test Data

Set No.	Specimen ID	Avg Diam. (in)	Area (sq in)	Date Received	Weight (lbs)	Date Tested	Age at Test (days)	Maximum Load (lbs)	Compressive Strength (psi)	Fracture Type	Tested By
4	A	4.00	12.57		8.88	08/26/19	4	53,370	4,250	5	RP
4	B	4.00	12.57		8.84	08/26/19	4	54,170	4,310	3	RP
								Average (4 days)	4,280		
4	C	4.00	12.57		8.84	08/29/19	7	64,830	5,160	3	SKY
4	D	4.00	12.57		8.84	08/29/19	7	66,490	5,290	3	SKY
								Average (7 days)	5,230		
4	E	4.00	12.57			09/19/19	28				
4	F	4.00	12.57			09/19/19	28				
4	G	4.00	12.57			09/19/19	28				

Initial Cure: Onsite Cooler

Final Cure: Moist Room

Comments:

Samples Made By: Terracon

Services: Obtain samples of fresh concrete at the placement locations (ASTM C-172), perform required field tests and cast, cure, and test compressive strength samples (ASTM C-31, C-39, C-617).

Terracon Rep.: Ramiro Perez

Start/Stop: 0000-1100, 1500-1700

Reported To:

Contractor: Parsons Mahan JV

Report Distribution:

See attached distribution list.

Test Methods: ASTM C 31

PMJV Letter Dated September 6, 2019 Exhibit B

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CONCRETE COMPRESSIVE STRENGTH TEST REPORT

Report Number: 35171017.0255
Service Date: 08/22/19
Report Date: 08/29/19 Revision 1 - 7-day results
Task:

Terracon

25809 I 30
Bryant, AR 72022-9313
501-847-9292 Reg No: 918015

Client

Parsons-Mahan Joint Venture
Attn: Ivo Yagar
1499 W 120th Ave Ste 200
Westminster, CO 80234-2754

Project

I40 White River Bridge
I-40
Biscoe, AR

Project Number: 35171017

Material Information

Specified Strength: 3,500 psi @ 28 days

Mix ID: Class S w/Fly Ash

Supplier:

Batch Time: 0749

Plant: 5

Truck No.: 182

Ticket No.: 8971

Sample Information

Sample Date: 08/22/19 Sample Time: 0809

Sampled By: Ramiro Perez

Weather Conditions: cloudy, humid

Accumulative Yards: 369 Batch Size (cy): 9

Placement Method: Pump

Water Added Before (gal): 0

Water Added After (gal): 0

Sample Location: Lot 17-3

Placement Location: Pier 1 Cap

Field Test Data

Test	Result	Specification
Slump (in):	5 3/4	4.5 +/- 3.5
Air Content (%):	1.0	
Concrete Temp. (F):	83	
Ambient Temp. (F):	75	
Plastic Unit Wt. (pcf):	152.6	
Yield (Cu. Yds.):		

Laboratory Test Data

Set No.	Specimen ID	Avg Diam. (in)	Area (sq in)	Date Received	Weight (lbs)	Date Tested	Age at Test (days)	Maximum Load (lbs)	Compressive Strength (psi)	Fracture Type	Tested By
5	A	4.00	12.57		8.88	08/26/19	4	47,690	3,800	3	RP
5	B	4.00	12.57		8.86	08/26/19	4	45,300	3,600	3	RP
							Average (4 days)		3,700		
5	C	4.00	12.57		8.86	08/29/19	7	62,400	4,970	3	SKY
5	D	4.00	12.57		8.84	08/29/19	7	60,280	4,800	2	SKY
							Average (7 days)		4,880		
5	E	4.00	12.57			09/19/19	28				
5	F	4.00	12.57			09/19/19	28				
5	G	4.00	12.57			09/19/19	28				

Initial Cure: Onsite Cooler

Final Cure: Moist Room

Comments:

Samples Made By: Terracon

Services: Obtain samples of fresh concrete at the placement locations (ASTM C-172), perform required field tests and cast, cure, and test compressive strength samples (ASTM C-31, C-39, C-617).

Terracon Rep.: Ramiro Perez

Start/Stop: 0000-1100, 1500-1700

Reported To:

Contractor: Parsons Mahan JV

Report Distribution:

See attached distribution list.

Reviewed By:



Aaron Hunter

Staff Engineer, CTPP 3506

Test Methods: ASTM C 31

PMJV Letter Dated September 6, 2019 Exhibit B

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Distribution Page

Report Number: 35171017.0255
Service Date: 08/22/19
Report Date: 08/29/19 Revision 1 - 7-day results
Task:



25809 I 30
Bryant, AR 72022-9313
501-847-9292

Distribution List

- (1) Parsons-Mahan Joint Venture, Ivo Yagar
- (1) CJ Mahan Construction Company, Scott Richardson
- (1) Parsons-Mahan Joint Venture, Aaron Slates
- (1) Parsons-Mahan Joint Venture, Allen Clark
- (1) Parsons-Mahan Joint Venture, Ivo Yagar
- (1) Parsons-Mahan Joint Venture, Jeff North
- (1) Parsons-Mahan Joint Venture, Megan Forthman
- (1) Parsons-Mahan Joint Venture, Michael Hernandez
- (1) Parsons-Mahan Joint Venture, Mohammed Osman
- (1) Parsons-Mahan Joint Venture, Yousif Almaarroof
- (1) Terracon Consultants, Inc., Jesse Kocher
- (1) Terracon Consultants, Inc., Pete Falletta

Memorandum

File ID: Memo_190912_WhtRiver_Pier1Cap.docx

To: Michael Hernandez, PE
Sr. Project Manager, Parsons

From: Vincent Gastoni, PE
Principal Project Manager, Principal Bridge Engineer

Date: September 12, 2019

Subject: AR White River Pier 1 Pier Cap – Shear Friction Analysis

Attached please find our shear friction analysis of the Pier 1 Cap construction joint per the AASHTO LRFD Bridge Design Specifications (8th Edition). This analysis is based on the following conservative assumptions:

Interface Shear Transfer, Shear Friction:

Cohesion and Friction Factors per 5.7.4.4 were taken as concrete placed against a non-roughened surface which applies a cohesion factor of 0.075 ksi. For reference, concrete placed monolithically and concrete placed against an intentionally roughened surface (1/4" amplitude) utilize a cohesion factor of 0.40 ksi and 0.24 ksi respectfully. Given the uneven surface of the unplanned construction joint and likely exposure of aggregate due the rain fall we view the use of 0.075 ksi as conservative.

Our design load was conservatively taken from the table for seismic isolation bearings design requirements in the plans (Dwg 56839) but conservatively analyzed as a Strength Load case rather an Extreme Event load case. The standard Strength Load cases of wind are significantly less than the seismic loads. The analysis also assumes material properties per the original plan values for direct comparison to the Engineer of records calculations.

Analysis Results:

The minimum area of interface reinforcing per AASHTO 5.7.4.2 are met. This analysis conservatively ignores any contribution from compressive force at the interface. Minimum development of the reinforcement below the construction joint is adequate.

The shear resistance along the plane of the construction joint is adequate and results in a Demand to Capacity ration of 0.13 (demand is 13% of the calculated capacity).

Recommendations:

The conservative analysis and code check of the cap section at the construction joint location demonstrates the adequacy of the section with significant reserve and we recommend it be accepted as meeting the original basis of design performance requirements.

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By: PJT	Date: 9/5/19	Title: Pier 1 Cap As-built Review • Delayed concrete pour review.		
Check:	Date:			

Cap Geometry:

Cap Depth = 11.000' = 132.000" (Maximum Depth - worst case)
 Cap Width = 8.500' = 102.000"
 First Pour = 3.333' = 40.000" → $I_g = 544,000 \text{ in}^4$
 Second Pour = 7.667' = 92.000"

Beam Length = 17.750' = 213.000" (Concrete Spans)
 Beam Length = 21.000' = 252.000" (Steel Falsework Spans)

Column to Column Spacing = 14.500'

Column Diameter = 6.500'

Assume support at = 0.250 of Column diameter

Concrete:

Concrete Unit Weight = 0.150 kcf (Design)

Concrete Unit Weight = 0.145 kcf (Modulus)

Compressive Strength (f'_c) = 3.50 ksi

Modulus of Elasticity (E_c) = 3,814.69 kip/in (5.4.2.4-1)

Bars		
US	db	As
#3	0.375	0.11
#4	0.500	0.20
#5	0.625	0.31
#6	0.750	0.44
#7	0.875	0.60
#8	1.000	0.79
#9	1.128	1.00
#10	1.270	1.27
#11	1.410	1.56

Reinforcement:

Modulus of Elasticity (E_s) = 29,000.00 ksi

Yield Strength (F_y) = 60.00 ksi

n = 7.6

Development Length:

$l_d = l_{db} [\lambda_{rl} \lambda_{cf} \lambda_{rc} \lambda_{er} / \lambda]$ = modified tension development length, in.

$l_{db} = 2.4 d_b f_y / \sqrt{f'_c}$ = basic development length, in.

λ_{rl} = reinforcement location factor

λ_{cf} = coating factor

λ_{rc} = reinforcement confinement factor

λ_{er} = excess reinforcement factor

Art. 5.10.8.2.1a

Eq. 5.10.8.2.1a-1

Eq. 5.10.8.2.1a-2

Y/N if factor applies ----->

Bar Size	Bar Dia.	l_{db}	λ_{rl}	λ_{cf}	λ_{rc}	λ_{er}	l_d
#6	0.75	57.7	1	1	1	1	57.7 in.
#11	1.41	108.5	1	1	1	1	108.5 in.

Design Standards:

AASHTO LRFD Bridge Design Specifications, 8th Edition - Interface Shear Transfer - Shear Friction Calculation

AASHTO LRFD Bridge Design Specifications, 7th Edition - Load Combinations for estimating Factored Shear Force

		Project:	BRIDGE OVER WHITE RIVER	Page No:	2	Sheets:	4
By: PJT	Date: 9/5/19	Title: Pier 1 Cap As-built Review • Delayed concrete pour review.					
Check:	Date:						

Interface Shear Transfer - Shear Friction:

Art. 5.7.4

General:

Art. 5.7.4.1

Interface shear transfer shall be considered across a given plane at:

- An existing or potential crack;
- An interface between dissimilar materials;
- An interface between two concretes cast at different times; or <----- Applicable Case
- The interface between different elements of the cross-section

Minimum Area of Interface Shear Reinforcement:

Art. 5.7.4.2

$$A_{vf} \geq 0.05 A_{cv}/f_y$$

Eq. 5.7.4.2-1

$$A_{cv} = 141,372 \text{ in}^2 = \text{area of concrete considered to be engaged in interface shear transfer (in}^2\text{)}$$

$$= b_{vi} \cdot L_{vi} = \text{Interface width} \cdot \text{interface length}$$

Eq. 5.7.4.3-6

$$b_{vi} = 102 \text{ in}$$

$$L_{vi} = 1,386 \text{ in}$$

$$A_{vfmin} = 118 \text{ in}^2$$

Eq. 5.7.4.2-1

Area of Interface Reinforcement Provided:

Element	Bar No.	Bars/Set	Legs/Bar	Sets/Groups	Groups	No. of Bars	Bar Size	Bar Area	Total Area	
Cap	B601	0	2	9	6	0	#6	0.44	0.0	in ²
Cap	B602	2	2	3	2	24	#6	0.44	10.6	in ²
Cap	B602	2	2	21	5	420	#6	0.44	184.8	in ²
Column	C1101	0	1	1	6	0	#11	1.56	0.0	in ²
$A_{vfprov'd}$ = area of steel provided =									195.4	in ²
A_{vfmin} = area of steel minimum =									117.8	in ²
									OK	

Notes:

1. B601 are located over the columns and terminal at the bottom of the cap. Development length is the first pour depth minus 2.5 in. giving a development length = 36.0 in. The modified tension development length = 57.7 in., so bars are not fully developed and are ignored in the calculation.
2. B602 are fully closed stirrups that are fully develop at the cold joint and can be included in the calculation.
3. B1101 extend 3'-2" minimum into the cap and do not cross the cold joint so bars cannot be included in the calculation.
4. Compressive force on the shear interface is ignored, which is conservative.

		Project: BRIDGE OVER WHITE RIVER	Page No: 3	Sheets: 4
By: PJT	Date: 9/5/19	Title: Pier 1 Cap As-built Review • Delayed concrete pour review.		
Check:	Date:			

Interface Shear Resistance:

Art. 5.7.4.3

Factored Interface Shear Resistance, V_{ri} :

$$V_{ri} = \phi V_{ni} = \text{resistance factor of shear (Art. 5.5.4.2) nominal interface shear resistance} \quad \text{Eq. 5.7.4.3-1}$$

$$V_{ri} = \geq V_{ui} = \text{factored resistance must be } \geq \text{factor interface shear force.} \quad \text{Eq. 5.7.4.3-2}$$

$$\phi = 0.9$$

$$V_{ni} = c \cdot A_{cv} + \mu (A_{vf} \cdot f_y + P_c) \quad \text{Eq. 5.7.4.3-3}$$

$$P_c = 0.0 = \text{permanent net compressive force normal to the shear plane} \quad \text{Art. 5.7.4.4}$$

(conservatively ignore the compressive force due to dead loads)

Cohesion and Friction Factors:

Art. 5.7.4.4

• For concrete placed against a clean concrete surface, free of laitance, but not intentionally roughened:

$$c = 0.075 = \text{cohesion factor, ksi}$$

$$\mu = 0.6 = \text{friction factor}$$

$$K_1 = 0.2 = \text{fraction of concrete strength available to resist interface shear}$$

$$K_2 = 0.8 = \text{limiting interface shear resistance, ksi}$$

Nominal Interface Shear Resistance:

$$V_{niconc} = 10,603 = c \cdot A_{cv} = \text{interface shear resistance, concrete contribution, kips} \quad \text{Eq. 5.7.4.3-3}$$

$$V_{ni steel} = 7,033 = \mu A_{vf} \cdot f_y = \text{interface shear resistance, reinforcing contribution, kips} \quad \text{Eq. 5.7.4.3-3}$$

$$V_{nicomp} = 0 = \mu P_c = \text{interface shear resistance, compressive force contribution, kips} \quad \text{Eq. 5.7.4.3-3}$$

$$V_{ni} = 17,636 \text{ kips}$$

$$V_{ni} \leq K_1 \cdot f_c \cdot A_{cv} \quad \text{Eq. 5.7.4.3-4}$$

$$= 98,960 \text{ kips OK}$$

$$V_{ni} \leq K_2 \cdot A_{cv} \quad \text{Eq. 5.7.4.3-5}$$

$$= 113,098 \text{ kips OK}$$

Factored Nominal Interface Shear Resistance:

$$V_{ri} = \phi V_{ni} = 15,872 \text{ kips}$$

Factored Interface Shear Force:

$$V_{ui} = 2,028 \text{ kips} \quad \text{Estimated based on Table for Seismic Isolation Bearing Design Requirements Dwg. No. 56839}$$

Interface Shear Check:

$$V_{ui}/V_{ri} = 0.13 = \text{factored force / factored resistance, } \leq 1, \text{ OK}$$

		Project: BRIDGE OVER WHITE RIVER	Page No: 4	Sheets: 4
By: PJT	Date: 9/5/19	Title: Pier 1 Cap As-built Review • Delayed concrete pour review.		
Check:	Date:			

Estimated Factored Interface Shear Force:

Table for Seismic Isolation Bearing Design Requirements Dwg. No. 56839 (Force per Bearing)

Strength I:

	Unfactored Force	Load Factor	Factored Force	
Horizontal Thermal Force (Longitudinal)	33.3	0.5	16.7	L
Horizontal Braking Force (Longitudinal)	2.0	1.75	3.5	L
Sum of Longitudinal Forces	L		20.2	kips
Sum of Transverse Forces	T		0.0	kips
Resultant Force			20.2	kips

Strength III:

	Unfactored Force	Load Factor	Factored Force	
Horizontal Thermal Force (Longitudinal)	33.3	0.5	16.7	L
Horizontal Braking Force (Longitudinal)	2.0	0.0	0.0	L
Max. Horizontal Wind on Live Load Force (Transverse)	3.0	0.0	0.0	T
Max. Horizontal Wind on Superstructure Force (Transverse)	31.4	1.4	44.0	T
Max. Horizontal Wind on Live Load Force (Longitudinal)	1.1	0.0	0.0	L
Max. Horizontal Wind on Superstructure Force (Longitudinal)	11.9	1.4	16.7	L
Sum of Longitudinal Forces	L		33.3	kips
Sum of Transverse Forces	T		44.0	kips
Resultant Force			55.2	kips

Strength V:

	Unfactored Force	Load Factor	Factored Force	
Horizontal Thermal Force (Longitudinal)	33.3	0.5	16.7	L
Horizontal Braking Force (Longitudinal)	2.0	1.35	2.7	L
Max. Horizontal Wind on Live Load Force (Transverse)	3.0	1.0	3.0	T
Max. Horizontal Wind on Superstructure Force (Transverse)	31.4	0.4	12.6	T
Max. Horizontal Wind on Live Load Force (Longitudinal)	1.1	1.0	1.1	L
Max. Horizontal Wind on Superstructure Force (Longitudinal)	11.9	0.4	4.8	L
Sum of Longitudinal Forces	L		25.2	kips
Sum of Transverse Forces	T		15.6	kips
Resultant Force			29.6	kips

Extreme I:

	Unfactored Force	Load Factor	Factored Force	
Maximum Horizontal Seismic Force (Any Direction)	202.8	1.0	202.8	A
Sum of Longitudinal Forces	A		202.8	kips
Sum of Transverse Forces			0.0	kips
Resultant Force			202.8	kips

Factored Interface Shear Force:

$V_{ui} = 202.8$ kips per Bearing
 $N = 10.0$ No. of Bearings
 $V_{ui} = 2028.0$ kips

1499 West 120th Avenue, Suite 200, Westminster, CO 80234

September 24, 2019

Mr. Emanuel Banks, P.E.
Deputy Director and Chief Engineer
Arkansas Department of Transportation
10324 Interstate 30 / P.O. Box 2261
Little Rock, AR 72203-2261

Re: Job No. BB0610 FAP NHPP-40-4(81)200 White River Structure and Approaches
Pier 1 Pier Cap Potential Cold Joint
Appeal of Resident Engineer's Decision

Dear Mr. Banks:

In accordance with Contract Section 105.01, PMJV hereby appeals the September 20, 2019, decision of the Resident Engineer regarding the necessity of, and ultimate responsibility for, the directed removal and replacement of the Pier 1 cap. A copy of that decision is attached as Exhibit 1. Given the critical nature of this issue as it pertains to the schedule for completing and opening the bridge to traffic, we further request an immediate hearing on this matter.

Our position remains as stated in our letter dated September 6, 2019 (see Exhibit 2). As outlined in that letter, the physical investigation performed on the cap after placement provides no clear evidence that a horizontal "cold joint" exists throughout the pier cap, as suggested by the Department. Further, even if one assumes that an unplanned, unprepared horizontal construction joint does exist within and throughout the pier cap, actual engineering analyses performed to check locked-in stresses in the reinforcing steel and shear friction transfer across the joint demonstrate there is no reduction in structural capacity as compared to the original design. Finally, the record is clear that the concerns over the formation of a cold joint are based upon the fact that placement of concrete in the pier cap was interrupted by an unanticipated lightning storm that mandated an immediate shut-down of operations for life-safety considerations, and that storm is unquestionably an act of God. Any latent physical damage within the cap as has been alleged after-the-fact by the Department is the direct result of the storm and any repairs, including removal and replacement, are compensable under 106.17. Each of these are discussed in more detail in the following sections.

There is No Definitive Physical Evidence of a Continuous Cold Joint Present in the Pier Cap.

After the Department's initial letter on this matter dated September 4, 2019 (see Exhibit 3), several cores were taken from the cap and retained by Terracon. On September 12, 2019, a meeting was held at the site to review the circumstances surrounding the potential damage to the pier cap concrete as the result of the storm, and to examine core samples taken from the pier cap. These cores show no evidence of a cold joint throughout the cap, with only an isolated discontinuity at the formed face evident in one horizontal core. The sole vertical core reviewed at the meeting, and pictured in our letter dated September 6th, shows no sign of a joint at the depth indicated based on

visible pour lines at the surface of the cap. In accordance with direction received at the September 12th meeting, on Saturday, September 14, 2019, one additional vertical core was taken from a location closer to the north end of the cap. However, that core sample was damaged during removal and the results were therefore inconclusive.

Even IF a Cold Joint Exists, Analysis Proves No Reduction in Structural Capacity of the Pier Cap.

With our RFI dated August 27, 2019 (see Exhibit 4), we included an analysis prepared by Parsons Principal Bridge Engineer, Vincent Gastoni, that evaluated the locked-in stresses in the reinforcing steel resulting over a range of assumed set-up conditions. This analysis proved that, even under the most conservative assumptions for set-up of the lower lift, the stress increase was more than offset by actual reinforcing steel yield strengths in excess of that assumed in the design, as documented by actual mill test reports. Therefore, Mr. Gastoni concluded that the as-built cap was compliant with the original design intent:

“Based on our structural evaluation, the minor locked-in stresses resulting from the unplanned construction joint can be considered within the scope of the AASHTO LRFD factors for nominal resistance... and we recommend accepting the work as compliant with the original design intent.”

At the September 12th meeting, we also discussed the scope of any further engineering analysis that would be required by ArDOT in order to satisfy any remaining concerns over structural adequacy of the as-built cap. The only further concern or analysis identified at that meeting was a check of the shear transfer along an assumed horizontal construction joint representing the suspected cold joint. Such an analysis, based on unrealistically conservative assumptions for the existence and physical nature of a horizontal construction joint within the cap, was prepared by PMJV and submitted on September 13, 2019 (see Exhibit 5). This evaluation confirmed there is no reduction in structural capacity as the result of an addition of an unplanned construction joint.

However, in his decision letter dated September 20, 2019, the Resident Engineer rejected the previously submitted analyses on the basis that they, “... do not provide the level of support necessary for the complexity of an unplanned horizontal cold joint in the Pier Cap.” As in the case of the meeting on September 12th, the letter provided no further explanation of what higher order of analyses would be necessary to provide the required “level of support,” whatever that even means.

Subsequently, we engaged McNary Bergeron & Associates to perform a peer review of our previously submitted analyses prepared by PMJV, including any additional analysis of the as-built conditions they felt was appropriate. Their report, which has been attached as Exhibit 6, concluded as follows:

“...the as-built pier cap has the same or greater capacity as that specified in the Contract Plans.”

At this point, we have professional opinions from two of the most highly regarded bridge design firms in the country concluding that, 1) even if a cold joint does exist in the Pier 1 cap, it does not result in a reduction in structural capacity as compared to the original plan design, and 2) the complexity of the analyses performed is appropriate to confirm this conclusion. On the other hand, beyond the general comment cited above, the Department has provided absolutely no engineering basis for its decision to reject the Pier 1 cap, and reportedly has not even engaged Jacobs Engineering, the

Designer of Record, to review the analyses we have submitted. Consequently, we view the Resident Engineer's direction to remove and replace the pier cap to be completely arbitrary and unjustifiably punitive. Such a directive, made in the face of such overwhelming engineering opinion to the contrary, is strictly an election by the Department that will only result in economic waste and in depriving the public from the use of this bridge for many months and potentially as much as a year.

Any Remedial Work Directed is Compensable Under Standard Specification 107.16.

The circumstances surrounding the alleged damage to the Pier 1 cap are outlined in our letter dated September 6, 2019. As stated in that letter, once lightning activity approached within 10 miles of the site, for the safety of both our project personnel and ArDOT's, and in accordance with our Site-Specific Accident Prevention Plan and OSHA regulations, we were forced to suspend operations and evacuate the site until this storm passed, some 2+ hours later. As such, this suspension, and any unrecognized cold joint that resulted from it, are the direct result of an act of God. Damage to the work resulting from acts of God are addressed in Section 107.16 of the Arkansas Standard Specifications for Highway Construction:

107.16 Contractor's Responsibility for Work. Until final acceptance of the project by the Engineer, the Contractor shall have the charge and care thereof and shall take every precaution against injury, theft, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries, thefts, or damages to any portion of the work occasioned by any of the above causes before final acceptance, and shall bear the expense thereof **except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, of the public enemy, or of governmental authorities.** (Emphasis added.)

In its letter dated September 10, 2019 (Exhibit 7), the Department attempts to avoid its contractual responsibility under 107.16 by assigning fault or negligence to PMJV personnel for not postponing the placement altogether, and mischaracterizes the events and discussions leading up to the start of the placement in order to support this assertion. According to our pour supervisor, Cohen Hilton, the forecast was reviewed with ArDOT inspection staff prior to starting the placement, and there was no adverse weather indicated in the short-term forecast for the site during the anticipated duration of the pour. Contrary to the Department's letter, there were no "uncertainties" discussed, nor objections raised, at the time we made the decision to begin the pour.

Similarly, there were also no objections raised to re-starting the placement after the storm had passed, including none being voiced by ArDOT's third party inspector from HDR. We dispute the Department's anecdotal reports that the concrete in the form had taken an initial set at the time the placement was continued. Simply prodding the surface with a broom handle does not qualify as an accepted test method appropriate to determine if "initial set," defined as compressive strength of 500 psi, has been attained. In fact, based on a $\frac{3}{4}$ " diameter rod, the surface would have to resist an applied force of approximately 220 lbs. in order to demonstrate initial set had taken place. As stated

in our prior correspondence on this matter, the mix included a set-retarding admixture at a dosage that delays initial set for approximately five (5) hours. At the time we restarted the placement at approximately 3:20 am, the oldest concrete at the suspended surface had been batched at 10:57 pm, making it only about 4 ½ hours old. As observed by those present at the time we restarted the placement, the surface of the concrete in place in the form was still physically susceptible to penetration and consolidation with a concrete vibrator.

The fact remains, the placement was interrupted by an unanticipated storm that included significant lightning that mandated an immediate shut-down of operations for life-safety considerations, and that storm is unquestionably an Act of God. Any latent physical damage within the cap as has been alleged after-the-fact by the Department is the direct result of the storm and any repairs, including removal and replacement, are compensable under 106.17.

If you would like to further discuss this issue, please contact me at (720) 576-6802

Sincerely,

A handwritten signature in blue ink, appearing to read 'MH', followed by a long horizontal line and a small upward flick at the end.

Michael Hernandez, P.E.
PMJV Project Manager

cc: Colton Cowles, Mark Trickey, Resident Engineer Office 61

cc: Gary Yancer, Randy Schultz, Tony Geach, Doug McCrae, Kevin Wiley, Megan Forthman of PMJV

PMJV Appeal 9-24-2019 Exhibit 1 is ArDOT Letter dated 09-20-19

PMJV Appeal 9-24-19 Exhibit 2 is PMJV Letter dated 09-06-19

PMJV Appeal 9-24-2019 Exhibit 3 ArDOT Letter dated 09-04-19

PMJV Appeal 9-24-2019 Exhibit 4 PMJV RFI-075 08-27-19

PMJV Appeal 9-24-2019 Exhibit 5 PMJV Shear Friction Memo &
Calcs 09-12-19

PMJV Appeal 9-24-2019 Exhibit 7, ArDOT Letter 9-10-19



www.mcnarybergeron.com

Unlike flexural beams with high span-to-depth ratios of 5 or greater, the horizontal shear across the cold joint is not as critical for deep beams. Any loss of the shear friction capacity along the cold joint is offset by the additional capacity of the installed reinforcing yield strength (by inspection, if not by code) and minimized by the load transfer as illustrated above. The reviewed calculations by Parsons goes into more detail of the design demands and capacity across the cold joint.

Locked-In Stresses

The ARDOT letter dated September 4, 2019 states a concern about additional stresses that could have been locked into the reinforcing steel with the phased pouring of the cap. Assuming the bottom 3'-4" of concrete in the cap set, and carries part of the wet concrete load, some load could be locked into the bottom pour. We have reviewed this and estimate that the #11 reinforcing in the bottom of the cap could pick up as much as 4.2 ksi of stress from the second pour. (See the attached calculations) This correlates well with the calculated reinforcing stresses summarized in Parsons memo dated August 27, 2019 that ranges from 1.8 ksi to 4.8 ksi, depending on the assumed concrete modulus.

Without regenerating the cap demands and design, comparing the capacity specified in the Plans to that provided in the field illustrates the structural adequacy of the cap.

The Contract Plans specify 60 ksi yield for the reinforcing. The #11 reinforcing in the bottom of the cap was tested to have an actual yield capacity of 75.4 ksi. Assuming 4.2 ksi was locked into the bottom reinforcing, the bottom reinforcing has 71.2 ksi left for the design loading and demand, which is 18% greater than that specified. By comparison, the bottom cap reinforcing is adequate for the tensile tie loading of the design.

Review Conclusions

Considering the higher installed concrete compressive strength and reinforcing yield stress, the as-built pier cap has the same or greater capacity as that specified in the Contract Plans.

Should you have any questions or wish to discuss this information further, please do not hesitate to contact us.

Cc: W. Scott McNary, PE

McNary Bergeron & AssociatesNew

Project: Bridge over White River Cap Review

Made By: JSM

Cold joint 3'-4" from the bottom of a 10' deep cap.

Assume the bottom 3'-4" carries the wet concrete weight of the upper 6'-8" of the cap pour.

$$cw := 8.5$$

$$cd := 10 - 3.33 = 6.67$$

$$wetconc := cw \cdot cd \cdot .155$$

$$wetconc = 8.788 \text{ k / ft for wet concrete pour}$$

Estimate of the positive moment in the bottom 3'-4" of the cap carries, assuming 14.5 ft simple span between columns

$$span := 14.5$$

$$M := \frac{wetconc \cdot span^2}{8} = 230.952 \text{ k-ft}$$

Check resulting stress in the bottom reinforcing due to the secondary pour / cold joint

$$As := 12 \cdot 1.56 = 18.72 \text{ in}^2 \text{ (12-#11s)}$$

Locked-in reinforcing stress

Use contract plans f_y and assume 10% f_c' of the specified 28-day strength

$$f_y := 60$$

$$f_c := 3.5$$

$$b := cw \cdot 12 = 102 \text{ in}$$

$$d := 3.33 \cdot 12 - 2.5 - .75 - .6875 = 36.023 \text{ in}$$

$$a := \frac{As \cdot f_y}{0.85 \cdot .1 \cdot f_c \cdot b \cdot d} = 1.028 \text{ in}$$

$$f_s := \frac{M \cdot 12}{As \cdot \left(d - \frac{a}{2}\right)} = 4.169 \text{ ksi}$$

Gary Yancer

From: Gary Yancer
Sent: Tuesday, September 24, 2019 1:22 PM
To: Banks, Emanuel
Cc: Hernandez, Michael; Geach, Tony
Subject: McNary Bergeron Report
Attachments: 2019-9-20 McNary White River Cap Review.pdf

Mr. Banks –

As I mentioned in our conversation earlier today, we have also retained McNary Bergeron & Associates to review the as-built condition of the Pier 1 Cap, including a peer review of Parson's analyses. I understand their report (attached) has not been formally submitted through channels, but is expected to go in today. I thought it might be helpful to get this in your hands today, so you hopefully can distribute it to the appropriate folks in your office in advance of the meeting tomorrow.

Both Scott McNary of McNary Bergeron and Vince Gastoni of Parsons are flying in for the meeting, so they will be available to answer any questions in person.

Thanks – Gary

Gary D. Yancer, P.E. | Managing Partner



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Columbus, OH 43222
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www.cjmahan.com

Gary Yancer

From: Gary Yancer
Sent: Friday, September 27, 2019 1:34 PM
To: Banks, Emanuel
Cc: Geach, Tony
Subject: Follow up to Pier 1 Cap Meeting
Attachments: ASTM C403 Set Time Procedure.pdf; Terracon report ASTM C403 09262019.pdf

Emanuel –

At the meeting earlier this week regarding the Pier 1 cap, we discussed the video taken of the inspector from HDR prodding the concrete with an extension handle of some sort, which was being interpreted to show that the concrete had taken an “initial set.” At the time, I stated that this “test” was not valid, since initial set is defined as the point when the concrete attains a compressive strength of 500 psi and it would take a force far greater than what the inspector could physically apply to prove that initial set had been attained (i.e. assuming a $\frac{3}{4}$ ” diameter end on that handle (area = 0.44 in^2) the surface would have to resist 221 lbs of applied force to indicate initial set under ASTM’s definition.)

I also mentioned that we had used a retarder in the mix that would delay set-up in the concrete by approximately 5 hours.

Attached for your reference are two documents that support those comments. First is the ASTM C403, “Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance.” Per Section 10.2 of ASTM C403, “initial set” is defined as 500 psi. The second document is a report dated 9/26/19 for testing performed by Terracon on the mix used in the Pier 1 Cap in accordance with ASTM C403. This report confirms this mix does not reach initial set for 305 minutes, or 5 hours and 5 minutes after batching.

Just wanted to show you I wasn’t pulling those numbers out of thin air.

Thanks again for expediting the meeting. We are proceeding with the other analysis we talked about at the meeting, and should have something further to send you yet today or Monday.

Thanks – Gary

Gary D. Yancer, P.E. | Managing Partner



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Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance¹

This standard is issued under the fixed designation C403/C403M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This test method covers the determination of the time of setting of concrete, with slump greater than zero, by means of penetration resistance measurements on mortar sieved from the concrete mixture.

1.2 This test method is suitable for use only when tests of the mortar fraction will provide the information required.

1.3 This test method may also be applied to prepared mortars and grouts.

1.4 This test method is applicable under controlled laboratory conditions, as well as under field conditions.

1.5 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

C125 Terminology Relating to Concrete and Concrete Aggregates

¹ This test method is under the jurisdiction of ASTM Committee C09 on Concrete and Concrete Aggregates and is the direct responsibility of Subcommittee C09.23 on Chemical Admixtures.

Current edition approved April 1, 2008. Published May 2008. Originally approved in 1957. Last previous edition approved in 2006 as C403/C403M-06. DOI: 10.1520/C0403_C0403M-08.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

C143/C143M Test Method for Slump of Hydraulic-Cement Concrete

C172 Practice for Sampling Freshly Mixed Concrete

C173/C173M Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method

C192/C192M Practice for Making and Curing Concrete Test Specimens in the Laboratory

C231 Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

C670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials

D1558 Test Method for Moisture Content Penetration Resistance Relationships of Fine-Grained Soils

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E2251 Specification for Liquid-in-Glass ASTM Thermometers with Low-Hazard Precision Liquids

3. Terminology

3.1 **Definitions**—Definitions are given in Terminology C125.

4. Summary of Test Method

4.1 A mortar sample is obtained by sieving a representative sample of fresh concrete. The mortar is placed in a container and stored at a specified ambient temperature. At regular time intervals, the resistance of the mortar to penetration by standard needles is measured. From a plot of penetration resistance versus elapsed time, the times of initial and final setting are determined.

5. Significance and Use

5.1 Since the setting of concrete is a gradual process, any definition of time of setting must necessarily be arbitrary. In this test method, the times required for the mortar to reach specified values of resistance to penetration are used to define times of setting.

*A Summary of Changes section appears at the end of this standard.



5.2 This test method can be used to determine the effects of variables, such as water content; brand, type and amount of cementitious material; or admixtures, upon the time of setting of concrete. This test method may also be used to determine compliance with specified time-of-setting requirements.

5.3 This test method may also be applied to prepared mortars and grouts. However, when the setting time of concrete is desired, the test shall be performed on mortar sieved from the concrete mixture and not on a prepared mortar intended to simulate the mortar fraction of the concrete; it has been shown that the initial and final setting times may be increased when using the prepared mortar.

6. Apparatus

6.1 *Containers for Mortar Specimens*—The containers shall be rigid, watertight, nonabsorptive, free of oil or grease, and either cylindrical or rectangular in cross section. Mortar surface area shall be provided for ten undisturbed readings of penetration resistance in accordance with clear distance requirements specified in Procedure. The lateral dimension shall be at least 6 in. [150 mm] and the height at least 6 in. [150 mm].

6.2 *Penetration Needles*—Needles shall be provided which can be attached to the loading apparatus and which have the following bearing areas: 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{10}$, $\frac{1}{20}$, and $\frac{1}{40}$ in.² [645, 323, 161, 65, 32, and 16 mm²]. Each needle shank shall be scribed circumferentially at a distance 1 in. [25 mm] from the bearing area. The length of the $\frac{1}{40}$ in.² [16-mm²] needle shall be not more than $3\frac{1}{2}$ in. [90 mm].

6.3 *Loading Apparatus*—A device shall be provided to measure the force required to cause penetration of the needles. The device shall be capable of measuring the penetration force with an accuracy of ± 2 lbf [10 N] and shall have a capacity of at least 130 lbf [600 N].

NOTE 1—Suitable loading apparatus can be of the spring-reaction type as described in Test Method D1558, or of other types with a calibrated force measuring device, such as an electronic load cell or a hydraulic pressure gage.

6.4 *Tamping Rod*—The tamping rod shall be a round, straight, steel rod $\frac{5}{8}$ in. [16 mm] in diameter and approximately 24 in. [600 mm] in length, having the tamping end or both ends rounded to a hemispherical tip, the diameter of which is $\frac{5}{8}$ in. [16 mm].

6.5 *Pipet*—A pipet or other suitable instrument shall be used for drawing off bleed water from the surface of the test specimen.

6.6 *Thermometer*—The thermometer shall be capable of measuring the temperature of the fresh mortar to ± 1 °F [± 0.5 °C]. ASTM liquid-in-glass thermometers having a temperature range from 0 to 120 °F [−20 to 50 °C], and conforming to the requirements of Thermometer 97F (or 97C) as prescribed in Specification E2251 are satisfactory. Other thermometers of the required accuracy, including the metal immersion type, are acceptable.

7. Sampling, Test Specimens, and Test Units

7.1 For tests under field conditions, prepare three specimens from each sample of concrete.

7.2 For tests under laboratory conditions, the requirements depend upon the purpose of the tests.

7.2.1 For testing to prove compliance of a material with performance requirements, make at least three separate concrete batches for each variable under investigation. Perform one time of setting test on each batch. Make an equal number of batches for each variable on any one day. When it is impossible to perform at least one test for each variable on any one day, mix the entire series of batches in as few days as possible, and repeat one of the mixtures each day as a standard for comparison.

7.2.2 For other tests, prepare three test specimens from one batch of concrete for each test variable.

7.3 Record the time at which initial contact was made between cement and mixing water.

7.4 For tests under field conditions, obtain a representative sample of the fresh concrete in accordance with Practice C172. For tests under laboratory conditions, make the concrete in accordance with Practice C192/C192M. Determine and record the slump (Test Method C143/C143M) and air content (Test Method C173/C173M or C231) of the fresh concrete.

7.5 From the concrete not used in the slump and air content tests, select a representative portion of sufficient volume to provide enough mortar to fill the test container, or containers, to a depth of at least $5\frac{1}{2}$ in. [140 mm].

7.6 Using the procedure in Practice C172, obtain a mortar sample by wet-sieving the selected portion of concrete through a 4.75-mm sieve³ and onto a nonabsorptive surface.

7.7 Thoroughly remix the mortar by hand methods on the nonabsorptive surface. Measure and record the temperature of the mortar. Place the mortar in the container, or containers, using a single layer. Consolidate the mortar to eliminate air pockets in the specimen and level the top surface. This may be accomplished by rocking the container back and forth on a solid surface, by tapping the sides of the container with the tamping rod, by rodding the mortar, or by placing the container on a vibrating table (see Note 2). If rodding is used, rod the mortar with the hemispherical end of the tamping rod. Rod the mortar once for each 1 in.² [645 mm²] of top surface area of the specimen and distribute the strokes uniformly over the cross section of the specimen. After completion of the rodding, tap the sides of the containers lightly with the tamping rod to close voids left by the tamping rod and to further level the surface of the specimen. Upon completion of specimen preparation, the mortar surface shall be at least $\frac{1}{2}$ in. [10 mm] below the top edge of the container to provide space for the collection and removal of bleed water and to avoid contact between the mortar surface and the protective covering specified in Section 8.

NOTE 2—Sieved mortar is generally of fluid consistency and air pockets are readily removed by the listed consolidation methods. The user should exercise judgment in the selection of the consolidation method. Rocking the container or tapping of the sides should be sufficient for fluid mortars. Rodding or using a vibrating table may be desirable for stiffer mortars. When using a vibrating table, use low-amplitude vibration so that portions of the sample are not ejected from the container.

³ Detailed requirements for this sieve are given in Specification E11.



8. Conditioning

8.1 For tests under laboratory conditions, the storage temperature for specimens shall be within the range 68 to 77 °F [20 to 25 °C], or as specified by the user.

8.2 For tests under field conditions, store the specimens under ambient conditions, or as specified by the user. Shield the specimens from direct sunlight.

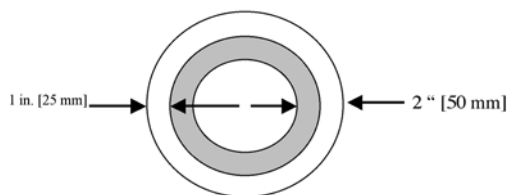
8.3 Measure and record the ambient air temperature at the start and finish of the test. To prevent excessive evaporation of moisture, keep the specimens covered with a suitable material such as damp burlap or a tight-fitting, water-impermeable cover for the duration of the test, except when bleed water is being removed or penetration tests are being made.

9. Procedure

9.1 Just prior to making a penetration test, remove bleed water from the surface of the mortar specimens by means of a pipet or suitable instrument. To facilitate collection of bleed water, tilt the specimen carefully to an angle of about 10° from the horizontal by placing a block under one side 2 min prior to removal of the water.

9.2 Insert a needle of appropriate size, depending upon the degree of setting of the mortar, in the penetration resistance apparatus and bring the bearing surface of the needle into contact with the mortar surface. Gradually and uniformly apply a vertical force downward on the apparatus until the needle penetrates the mortar to a depth of $1 \pm \frac{1}{16}$ in. [25 ± 2 mm], as indicated by the scribe mark (Note 4). The time required to penetrate to the 1-in. [25-mm] depth shall be 10 ± 2 s. Record the force required to produce the 1-in. [25-mm] penetration and the time of application, measured as elapsed time after initial contact of cement and water. Calculate the penetration resistance by dividing the recorded force by the bearing area of the needle, and record the penetration resistance. In subsequent penetration tests take care to avoid areas where the mortar has been disturbed by previous tests. The clear distance between needle impressions shall be at least two diameters of the needle being used, but not less than $\frac{1}{2}$ in. [15 mm]. The clear distance between any needle impression and the side of the container shall be at least 1 in. [25 mm], but not more than 2 in. [50 mm], as depicted in Fig. 1.

NOTE 3—For a cylindrical container with the smallest allowable outer diameter of 6 in., the operator can reasonably expect to achieve approximately eight penetrations before impinging upon previous penetrations. This is based on using needles of the following surface areas: 1 @ $\frac{1}{2}$ [13], 2 @ $\frac{1}{4}$ [6], 2 @ $\frac{1}{10}$ [2.5], 2 @ $\frac{1}{20}$ [1.3], and 1 @ $\frac{1}{40}$ [0.6] in.²[mm²].



NOTE 1—Dark-colored areas define where needle penetrations are permitted.

FIG. 1 Top View of Mortar Test Specimen

NOTE 4—To facilitate determination of when the required penetration has been attained, a sliding marker may be attached to the needle shaft. For example, a paper clip or masking tape may be placed on the shaft so that it coincides with the scribe mark. The marker should not interfere with the penetration of the needle into the mortar. The position of the marker should be checked prior to making a penetration.

9.3 For conventional concrete mixtures at laboratory temperatures of 68 to 77 °F [20 to 25 °C], make the initial test after an elapsed time of 3 to 4 h after initial contact between cement and water. Subsequent tests should be made at $\frac{1}{2}$ - to 1-h intervals. For concrete mixtures containing accelerators, or at temperatures higher than laboratory, it is advisable to make the initial test after an elapsed time of 1 to 2 h and subsequent tests at $\frac{1}{2}$ -h intervals. For concrete mixtures containing retarders, or at temperatures lower than laboratory, the initial test may be deferred until an elapsed time of 4 to 6 h. In all cases, time intervals between subsequent tests may be adjusted as necessary, depending upon the rate of setting, to obtain the required number of penetrations.

9.4 Make at least six penetrations for each time-of-setting test, with time intervals of such duration as to provide a satisfactory curve of penetration resistance versus elapsed time (Note 5). Continue testing until one at least penetration resistance reading equals or exceeds 4000 psi [27.6 MPa].

NOTE 5—A satisfactory curve is one which represents the overall development of penetration resistance and includes points before and after the times of initial and final setting to improve the accuracy of the required interpolation. For normal setting mixtures, test points are usually at equally spaced time intervals. Premature penetration testing will result in too many data points earlier than the initial setting time. This may decrease the accuracy of the estimated setting time by biasing the best fit line when regression analysis is used to analyze the penetration resistance data.

9.5 *Plotting Test Results*—One of the following alternative procedures may be used to plot the test results and obtain times of setting (Note 6). Appendix X1 illustrates the application of these procedures.

NOTE 6—The plot of penetration resistance versus elapsed time provides information on the rate of setting. The plot may be used to select the time for subsequent penetration tests and it can assist in identifying spurious test results. Therefore, it is recommended that the data be plotted as they are being accumulated.

9.5.1 Use the following plotting procedure to determine the times of setting by hand-fitting a smooth curve through the data. Prepare a graph of penetration resistance, as the ordinate, versus elapsed time, as the abscissa, using a scale such that 500 psi [3.5 MPa] and 1 h are each represented by a distance of at least $\frac{1}{2}$ in. [15 mm]. Plot the values of penetration resistance as a function of elapsed time.

9.5.2 Use the following plotting procedure to determine the times of setting by linear regression analysis of the logarithms of the data by using a suitable calculator. Using log-log graph paper, prepare a graph of penetration resistance, as the ordinate, versus elapsed time in minutes, as the abscissa. The limits of penetration resistance on the ordinate should extend from 10 psi [0.1 MPa] to 10 000 psi [100 MPa], and the limits of elapsed time on the abscissa should extend from 10 to 1000 min. If slow setting mixtures are used, the time limits may have



to be 100 to 10 000 min. Plot the values of penetration resistance as a function of elapsed time (Note 5).

9.5.3 Use the following procedure if a computer is used to plot test results and obtain the times of setting by regression analysis of the data. As the test results are obtained, enter the time and penetration resistance into the computer and plot the penetration resistance as the ordinate and the elapsed time as the abscissa. For software that permits only linear regression analysis, convert the data by taking their logarithms. The converted data will be fitted by a straight line⁴ (see Eq 1):

$$\text{Log}(PR) = a + b \text{Log}(t) \quad (1)$$

where:

PR = penetration resistance

t = elapsed time

a and b = regression constants

The data do not have to be converted if the software permits direct fitting of a power function:

$$PR = ct^d \quad (2)$$

where:

c and d = regression constants

9.5.4 The procedures in 9.5.2 and 9.5.3 assume that the data obey (Eq 1) or (Eq 2). Verify that the data obey one of these relationships. If the correlation coefficient for the regression analysis, after removal of outliers (see Note 7), is less than 0.98, use the procedure in 9.5.1.

10. Calculation

10.1 For each variable under investigation, separately plot the results of three or more time-of-setting tests. For each plot prepared according to 9.5.1, hand fit a smooth curve to the data points. For each plot prepared according to 9.5.2 or 9.5.3, use the method of least squares to obtain the constants of the best-fit relationship given by (Eq 1) or (Eq 2), whichever is applicable. Disregard data points that are obvious outliers from the trend defined by the rest of the points (Note 7).

NOTE 7—Outliers may occur because of factors such as: interferences due to the larger particles in the mortar; presence of large voids within the penetration zone; interferences from the impressions created by adjacent penetrations; failure to maintain the instrument perpendicular to the test surface during penetration; errors in reading the load; variations in the penetration depths; or variations in rate of loading. Judgement of the operator is required to identify those points that should not be included in the data analysis.

10.2 For each plot, determine the times of initial and final setting as the times when the penetration resistance equals 500 psi [3.5 MPa] and 4000 psi [27.6 MPa], respectively. For plots made according to 9.5.1, determine times of setting by visual inspection of the drawn curves. For plots made according to 9.5.2 or 9.5.3, determine the times of setting by interpolation using the best-fit regression equation. Record the times of setting in hours and minutes to the nearest 5 min.

10.3 For each variable under investigation, calculate the times of initial and final setting as the average values of the

individual test results. Record the average times in hours and minutes to the nearest 5 min.

11. Report

11.1 *Data on Concrete Mixture*—Report the following information on the concrete mixture:

11.1.1 Brand and type of cementitious materials, amounts (mass) of cementitious materials, fine aggregate and coarse aggregate per cubic yard [per cubic metre] of concrete, nominal maximum aggregate size, and water-cement or water-cementitious material ratio,

11.1.2 The name, type, and amount of admixture(s) used,

11.1.3 Air content of fresh concrete and method of determination,

11.1.4 Slump of concrete,

11.1.5 Temperature of mortar after sieving,

11.1.6 Record of ambient temperature during the test period, and

11.1.7 Date of test.

11.2 *Time of Setting Results*—Report the following information on the time of setting tests:

11.2.1 A plot of penetration resistance versus elapsed time for each time of setting test,

11.2.2 The times of initial and final setting for each test, reported in hours and minutes to the nearest minute, and

11.2.3 The average times of initial and final setting for each test condition, reported in hours and minutes to the nearest 5 min.

12. Precision and Bias

12.1 The data used to develop the precision statement were obtained using the inch-pound version of this test method. Estimates of time of setting were determined by both graphical methods and regression analysis. The temperature of the laboratory, where the concrete mixtures were sieved and the resulting mortar fraction measured for penetration resistance, was maintained at 73 ± 2 °F [23 ± 1 °C] for the duration of the round robin test.

12.2 The following precision values were obtained from an interlaboratory study⁵ involving five operators and three concrete mixtures. The average time of initial setting varied between 169 and 252 min., and the average time of final setting varied between 240 and 341 min. Three replicate determinations were made by each operator on specimens made from a single batch of each mixture.

12.3 *Single-Operator Precision*—The single-operator standard deviations of a single test result are shown in Table 1.^A The results of two properly conducted tests by the same operator are not expected to differ by more than the values shown in the third column of Table 1.^A The test method calls for reporting three test results. The range (difference between highest and lowest) of the three test results obtained by the same operator on specimens from the same batch of concrete are not expected to exceed the values shown in the fourth column of Table 1.^B

⁴ Popovics, S., 1971, "Physical Aspects of the Setting of Portland Cement Concrete," *Journal of Materials*, JMLSA, Vol. 6, No. 1, March, pp. 150–162.

⁵ Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR:C09-1032.



12.4 *Multi-Operator Precision*—The multi-operator standard deviations of a single test result are shown in Table 2.^A The results of two properly-conducted tests by different operators on the same material are not expected to differ by more than the values shown in the third Column of Table 2.^A The averages of three test results by two different operators obtained on specimens from a single batch of the same concrete are not expected to differ by more than the values in the fourth column of Table 2.^B

TABLE 1 Single-Operator Precision

Time of Setting	Single-Operator Standard Deviation, min ^A	Acceptable Difference Between Two Results, min ^A	Acceptable Range of Three Results, min ^B
Initial	3.5	9.8	11.4
Final	4.4	12.5	14.6

^AThese numbers represent, respectively, the (1s) and (d2s) limits as described in Practice C670.

^BCalculated as described in the section “acceptable range of more than two results” of Practice C670.

TABLE 2 Multi-Operator Precision

Time of Setting	Multi-Operator Standard Deviation, min ^A	Acceptable Difference Between Two Results, min ^A	Acceptable Difference Between Average of Three Results, min ^B
Initial	6.9	19.4	11.1
Final	10.1	28.7	16.4

^AThese numbers represent, respectively, the (1s) and (d2s) limits as described in Practice C670.

^BCalculated as described in the section “multilaboratory precision expressed as a maximum allowable differences between two averages” of Practice C670.

12.5 The bias of this test method cannot be determined because times of setting can be defined only in terms of the test method.

13. Keywords

13.1 concrete; mortar; penetration resistance; time of final setting; time of initial setting

APPENDIX

(Nonmandatory Information)

X1. ILLUSTRATIVE EXAMPLES

X1.1 The penetration resistance (*PR*) and the elapsed time (*t*) data in Table X1.1 will be used to illustrate the procedures for determining times of setting.

X1.2 *Hand Fit*—Fig. X1.1 is a plot of the penetration resistance versus elapsed time values in Table X1.1. The smooth curve was drawn by-hand using a flexible drawing curve. The curve was drawn so as to achieve the visual best-fit to the data. Note that the penetration resistance at an elapsed time of 335 min is an obvious outlier, and this point was disregarded in drawing the best-fit curve. Horizontal lines are drawn at penetration resistance values of 500 and 4000 psi. The intersections of the horizontal lines with the curve define the times of initial and final setting, which in this case are 289 min and 389 min, respectively.

X1.3 Regression Analysis:

TABLE X1.1 Penetration Resistance

Penetration Resistance (<i>PR</i>) (psi) ^A	Elapsed Time (<i>t</i>) (min)	Log(<i>PR</i>)	Log(<i>t</i>)
44	200	1.643	2.301
110	230	2.041	2.362
216	260	2.334	2.415
540	290	2.732	2.462
1000	320	3.000	2.505
1000	335	3.000	2.525
2000	350	3.301	2.544
2560	365	3.408	2.562
3520	380	3.547	2.580
4440	395	3.647	2.597

^AMPa = psi × 0.00689.

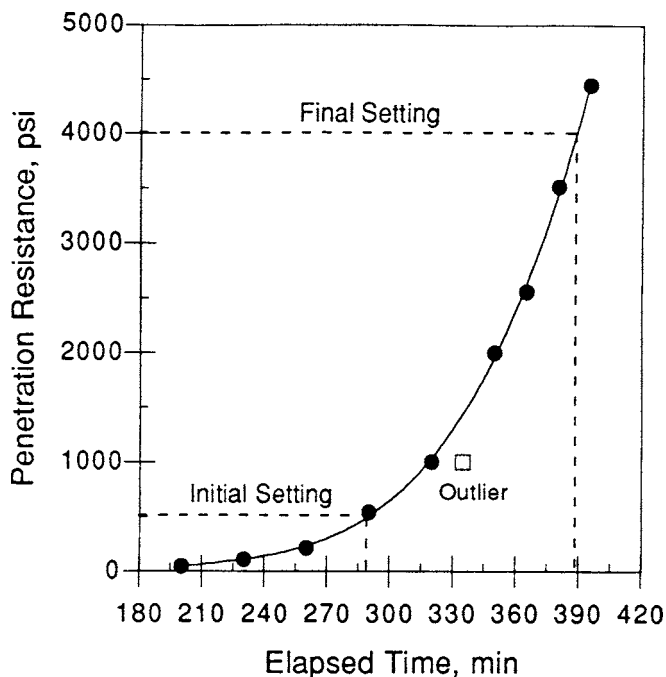


FIG. X1.1 Plot of Penetration Resistance Values Versus Elapsed Time and Hand Fit Curve Used to Determine Time of Setting (Note: Not drawn to actual scale)

X1.3.1 Fig. X1.2 is a log-log plot of the penetration resistance versus elapsed time values. The plot shows that, with the exception of the outlier, there is approximately a straight line relationship between the logarithms of penetration resistance

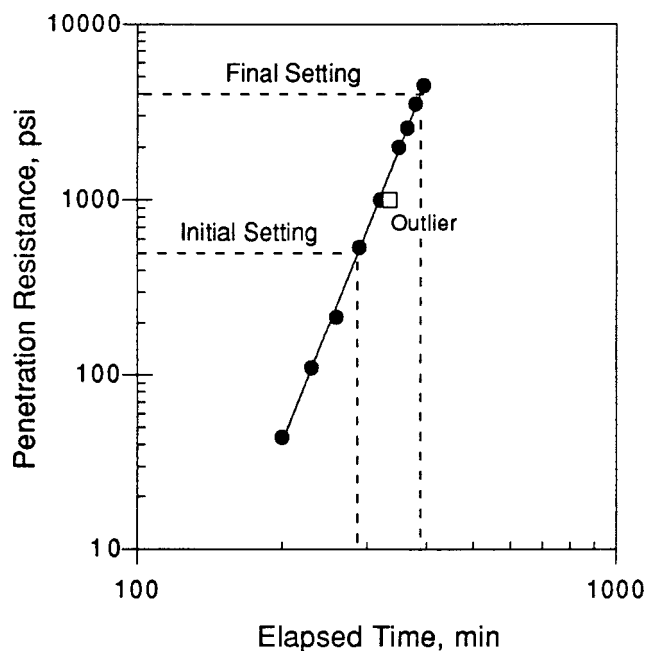


FIG. X1.2 Log-Log Plot Showing Straight Line to Determine Times of Setting by Using Regression Analysis

and elapsed time. The straight line is obtained by linear regression analysis using the logarithms shown in the third and fourth columns of Table X1.1. The equation for this line is:

$$\text{Log}(PR) = -14.196 + 6.871 \text{ Log}(t) \quad (\text{X1.1})$$

where:

PR = penetration resistance, and

t = elapsed time.

The correlation coefficient is 0.999, and it is, therefore, acceptable to use linear regression analysis.

X1.3.2 To obtain the times of setting, the equation is rewritten as:

$$\text{Log}(t) = \frac{\text{Log}(PR) + 14.196}{6.871} \quad (\text{X1.2})$$

X1.3.3 For time of initial setting, substitute the value 500 for PR :

$$\text{Log}(t) = \frac{\text{Log}(500) + 14.196}{6.871} = \frac{2.699 + 14.196}{6.871} = 2.458 \quad (\text{X1.3})$$

therefore:

$$t = (10)^{2.458} = 287 \text{ min.}$$

X1.3.4 For time of final setting, substitute the value 4000 for PR :

$$\text{Log}(t) = \frac{\text{Log}(4000) + 14.196}{6.871} = \frac{3.602 + 14.196}{6.871} = 2.590 \quad (\text{X1.4})$$

therefore:

$$t = (10)^{2.590} = 389 \text{ min.}$$

SUMMARY OF CHANGES

Committee C09 has identified the location of selected changes to this test method since the last issue, C403/C403M – 06, that may impact the use of this test method. (Approved April 1, 2008)

(I) Replaced Specification E1 with Specification E2251 in Referenced Documents and 6.6.

Committee C09 has identified the location of selected changes to this test method since the last issue, C403/C403M – 05, that may impact the use of this test method. (Approved December 15, 2006)

(I) Revised Section 12 and added new Table 1 and Table 2.



C403/C403M – 08

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GENERAL OBSERVATION REPORT

Report Number: 35191117.0002
Service Date: 09/17/19
Report Date: 09/26/19

Terracon

25809 I 30
Bryant, AR 72022-9313
501-847-9292 Reg No: 918015

Client

Currie & Associates LLC
Attn: Rhonda van Arsdale
250 N. Hartford Ave
Columbus, OH 43222

Project

Initial Set Time Testing
I-40
Biscoe, AR

Project Number: 35191117

On the date of service, four cubic yards of Mix CLASS S IND FLY ASH were made and tested onsite (2 specimens were brought inside in a temperature-controlled environment) for a time-set test per ASTM C403.

Compressive strength specimens were molded and plastic concrete tests were performed as shown on this report.

Test	Result
Slump	7"
Air content	1.2%
Ambient temperature	71°F
Concrete temperature	80°F

Water-cement initial contact was at 5:08 AM. 4,000 PSI of penetration resistance was at 390-plus minutes for the specimens that placed inside. A graph is shown below with our test results (an average of the two inside specimens). Penetration is plotted versus time. The inside temperature remained at steady at 72 degrees through the duration of the test.

Time of Set	
Initial Set (500 psi) – Inside Samples	305 Minutes
Final Set (4,000 psi) – Inside Samples	390+ Minutes

GENERAL OBSERVATION REPORT

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25809 I 30
Bryant, AR 72022-9313
501-847-9292 Reg No: 918015

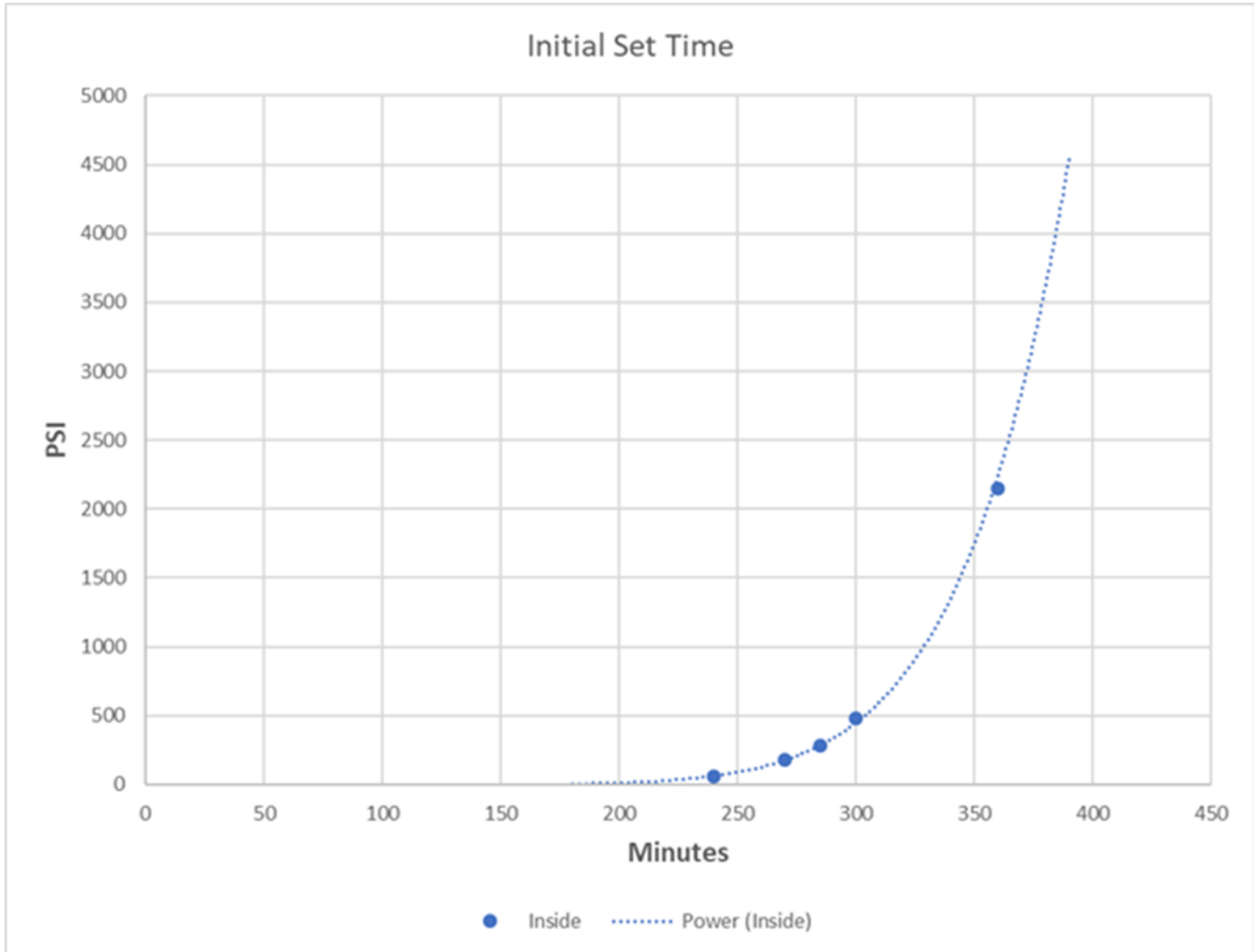
Client

Currie & Associates LLC
Attn: Rhonda van Arsdale
250 N. Hartford Ave
Columbus, OH 43222

Project

Initial Set Time Testing
I-40
Biscoe, AR

Project Number: 35191117



Services: Traveled to the project site to provide testing/observation services as requested.

Terracon Rep.: Ryan Hix, CTPP 3729

Reported To:

Contractor:

Report Distribution:

(1) Currie & Associates LLC, Rhonda van Arsdale

(1) CJ Mahan Construction Company, Jeff North

Start/Stop:

Reviewed By:

Chris S. Handley

Christopher Handley, P.E.

Project Manager

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

Memorandum

File ID: Memo_190927_WhtRiver_Pier1Cap.docx

To: Rick Ellis, Division Head, Bridge Division, ARDOT
Kyle Yeary PE, Assistant Division Head, Bridge Division, ARDOT

From: Vincent Gastoni, PE, Principal Project Manager, Principal Bridge Engineer
Alex Pearson PE, Bridge Engineer II
Paul Towell PE, Principal Bridge Engineer
Greg Hasbrouck PE, Senior Bridge Engineer

Date: September 27, 2019

Subject: AR White River Pier 1 Pier Cap
Refined Shear Friction Analysis-Interim Memorandum

Attached please find our refined shear friction analysis of the Pier 1 Cap construction joint per the AASHTO LRFD Bridge Design Specifications (8th Edition). This analysis utilizes a LARSA plate model based on geometric compatibility of the reinforced concrete element to determine the interface shear flow under the actual dead load and live load combination per AASHTO LRFD. This memorandum addresses comments provided by ARDOT regarding our simplified calculations based on the bearing seismic reaction forces listed in the contract plans in our September 12, 2019. The goal of this refined analysis is to supplement the simplified calculations with this more rigorous, computer analysis.

A final Memorandum will follow which includes evaluation of the peak stresses in the vertical reinforcement at the unplanned construction joint and investigation of durability concerns of the joint over the life of the structure.

For this refined analysis, load generation was as follows:

Dead Loads-Cap: Per the LARSA Model

Dead Loads-Superstructure: Forces from Jacobs calculations for dead load reactions were applied at the bearing location in the LARSA model

Live Loads-Superstructure: Forces from Jacobs calculations for live load reactions were patterned at the bearing location and in multiple load cases and combinations per Jacobs original design approach.

Note-The Jacobs original design calculations provided by ARDOT were sufficient to distill the external service load girder reactions without the need for a independent global analysis model by Parsons.

Memorandum

August 27, 2019

AR White River Pier 1 Pier Cap Evaluation

Evaluation:

DC, DW and multiple LL cases were generated and combined per LRFD 3.4.1 Load Factors and Load Combination to produce a STRENGTH I load case for evaluation.

Resulting STRENGTH I shear stresses were then compared to the shear resistance capacity per LRFD 5.7.4 based on the lowest friction and cohesion factors per LRFD 5.7.4.4 (unprepared finished concrete surface not intentionally roughed).

Analysis Results:

Demand over Capacity (D/C) ratio of 0.37 was calculated based on this evaluation indicating the structure has sufficient capacity for the applied loads to the limiting case of 1.0. The refined analysis and evaluation of the strength cases produces a higher D/C than the simplified analysis of seismic loads which resulting in a D/C=0.13 and indicates STRENGTH I case is the controlling load combination for this code check.

Continuing Evaluations:

The seismic load case will be applied to the refined model for evaluation of the EXTREME EVENT I load case combination.

Stresses along the vertical reinforcement in the cap at the construction joint level will be provided for all load cases

Investigation of potential durability effects to the construction joint region from vehicular vibrations on the cap due to the high level of truck traffic on this route.

CC: Michael Hernandez, Parsons

Attachment:

“White River Pier Cap 1, Br 07343 Over White River, Construction Joint Investigation”

Design Summary

LARSA Model Graphic Summary

LARSA Input Loads

Results and Design

Appendix:

- Bridge No. 07343 Plans
- Construction joint elevations
- Pier 1 and 2 Design Computation
- AAASHTO LRFD Bridge Design Specification (8th Edition) – Reference
- Reinforced Concrete Mechanics & Design, Wight & MacGregor - Reference
- LARSA Model Output

WHITE RIVER PIER CAP 1

BR. 07343 OVER WHITE RIVER

Construction Joint Investigation

DESIGN BY:	ASP	2019.09.27
CHECK BY:	Independent	
BRIDGE NO.	07343	
JOB NO.	406759	

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[illegible]

White River Pier Cap Construction Joint

During the pour of pier cap 1 of Br. 7343, there was an interruption to the pour or approximately three hours. At this point approximately 3.5' of cap had been poured. At the time the pour resumed, the initial pour appears to have started to set and had become somewhat stiff.

The intent of the following calculations is to evaluate this potential construction joint. The two pours will be evaluated as a composite beam. Provided the construction joint has sufficient interface shear capacity, the pier cap will act as a single, composite, unit.

Analysis Procedure:

In order to accurately determine the interplane shear force, a 2D Plate model of the pier cap will be made in LARSA. The pier cap will be modeled as a unit width. To capture stiffness effects, the columns will be modeled as well.

Columns will be modeled as beam elements. Columns will be fixed at the bottom of the pier cap and fixed at the top of the plinth. Section properties of the column will be reduced such that the stiffness between the unit width cap and column is the same as actual cap and column.

Superstructure dead and live loads will be applied at the bearings at the top of the cap. Loads will be determined from the provided design calculations and adjusted for the unit width cap. Selfweight of the cap will be generated in the model. Live load cases will be enveloped such that maximum and minimum live load results will be checked at all locations. These will be combined with dead load using Strength I load combination.

Interplane shear force Strength I results will be extracted from the model. There will be two load cases looked at, Strength I Max and Strength I Min. These represent the enveloped live load results. The F_{xy} results @ $Z=3.5'$ will be considered, which represents the interplane shear force at the construction joint.

Design Procedure:

The construction joint will be designed in the same manner as a composite beam. There must be sufficient amount of interface shear transfer for the two portions of concrete to act compositely.

Shear resistance will be determined per AASHTO 5.7.4. The construction joint will be assumed to be a "clean concrete surface, free of laitance, but not intentionally roughed". This has the most conservative values for cohesion and friction between the planes.

Additionally, any compression in the plane due to bending will conservatively be ignored in the calculations.

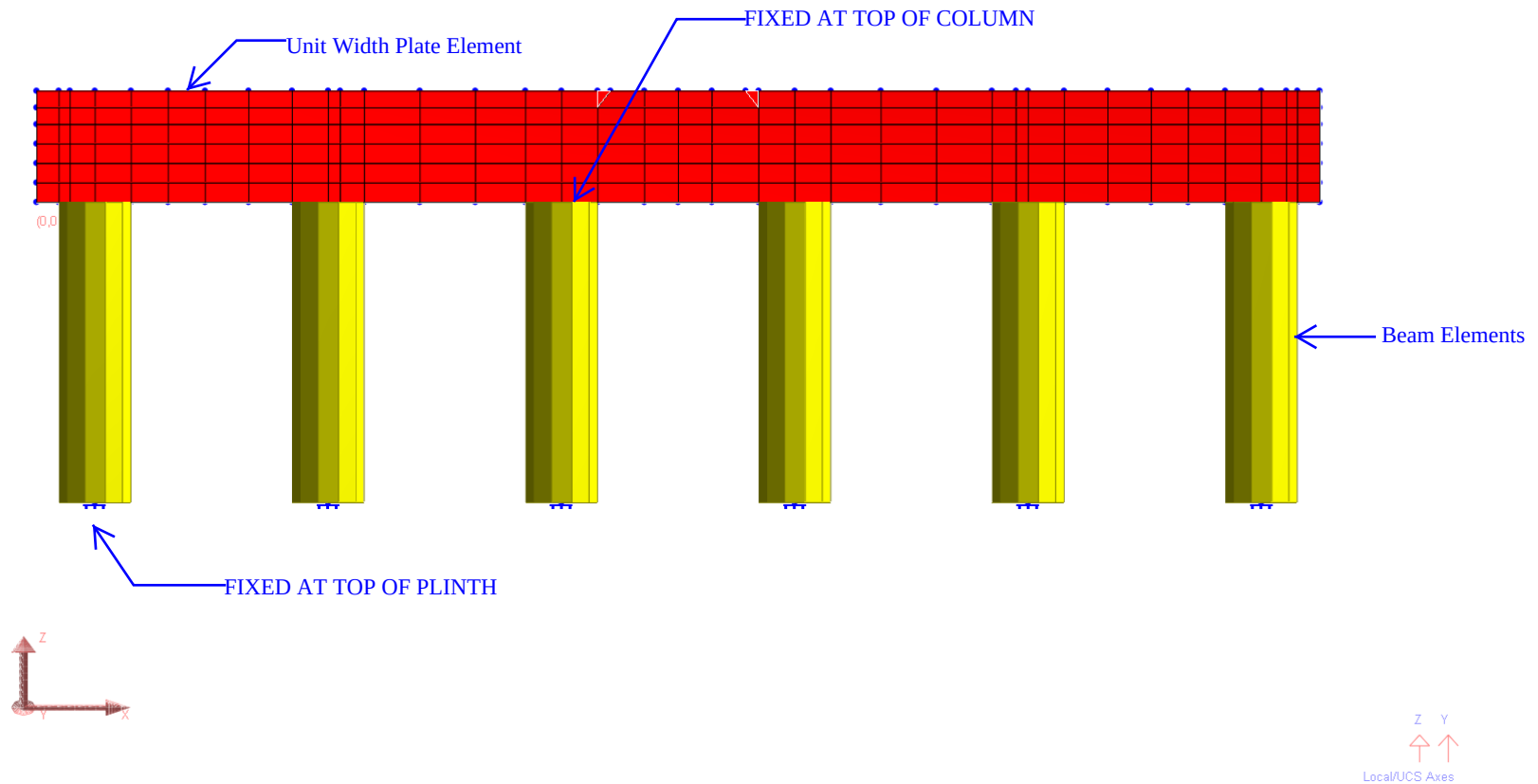
Design Results:

Based on the analysis there is sufficient interface shear transfer across the construction joint to consider the two pours composite. Therefore, the pier cap will act as originally intended in design.

Additionally, the concrete alone has the capacity to transfer the required shear. Therefore, the provided shear stirrups experience no additional stress from the interplane shear.

Graphics View 1

Zoom 1.563X

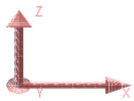
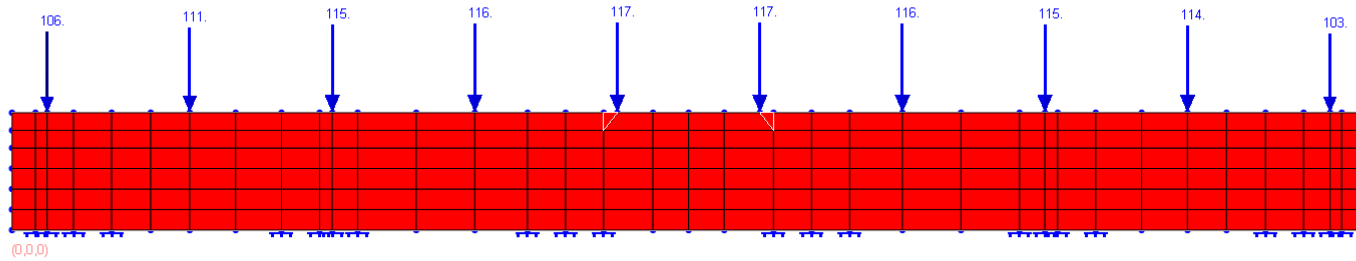


Graphics View 1

Zoom 1.563X
Load Case SuperDC (units: kips, ft)

SUPERSTRUCTURE DC+DW

SUPER STRUCTURE
DEAD LOAD



Loads determined from JACOBS design computations



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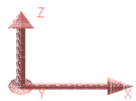
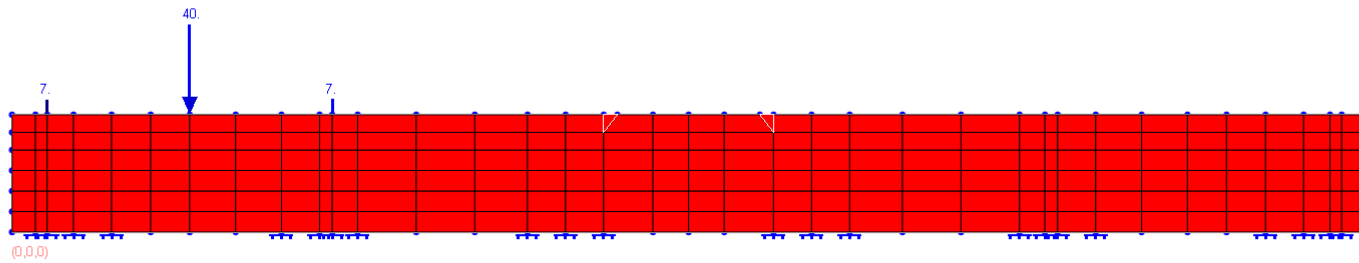
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Graphics View 1

Zoom: 1.563X
Load Case LL1 (units: kips, ft)

LIVE LOAD 1



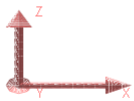
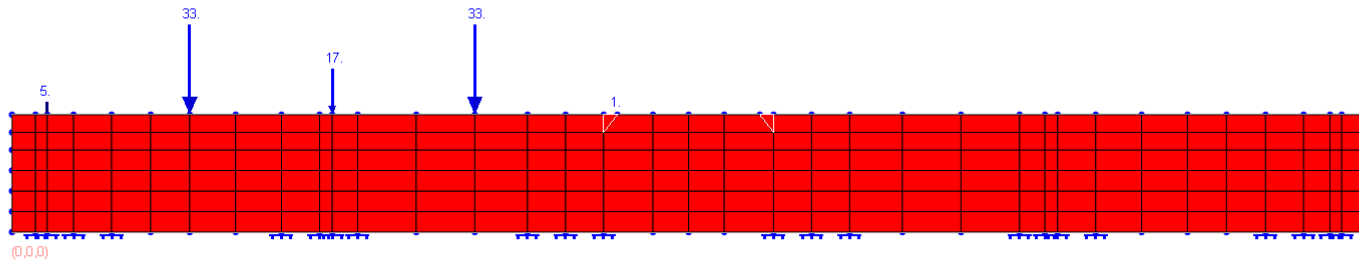
Loads determined from JACOBS design computations

Local/UCS Axes

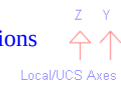
Graphics View 1

Zoom: 1.563X
Load Case LL2 (units: kips, ft)

LIVE LOAD 2



Loads determined from JACOBS design computations



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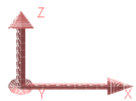
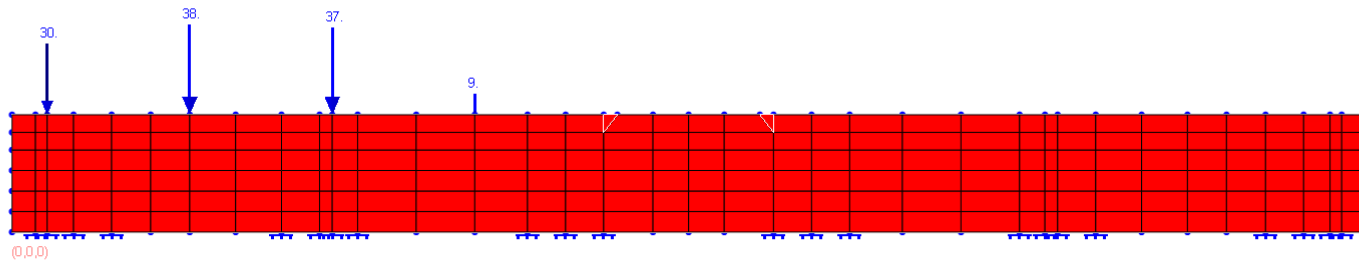
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Graphics View 1

Zoom: 1.563X
Load Case LL3 (units: kips, ft)

LIVE LOAD 3



Loads determined from JACOBS design computations 
Local/UCS Axes



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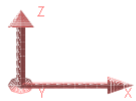
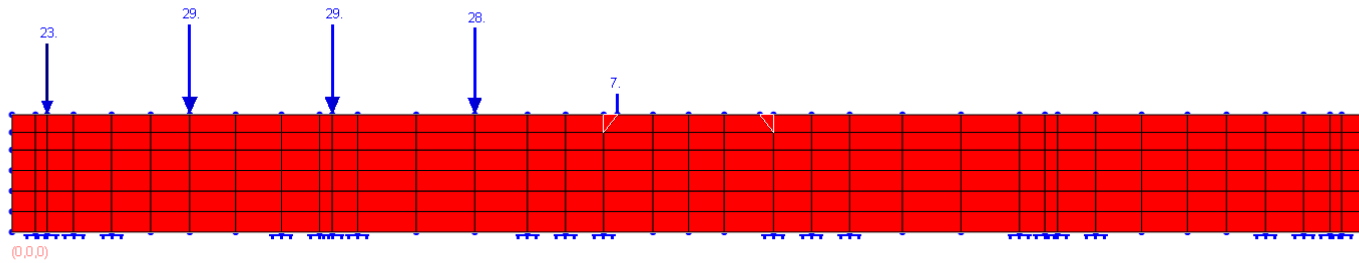
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Graphics View 1

Zoom: 1.563X
Load Case LL4 (units: kips, ft)

LIVE LOAD 4



Loads determined from JACOBS design computations 
Local/UCS Axes



p006958B

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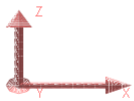
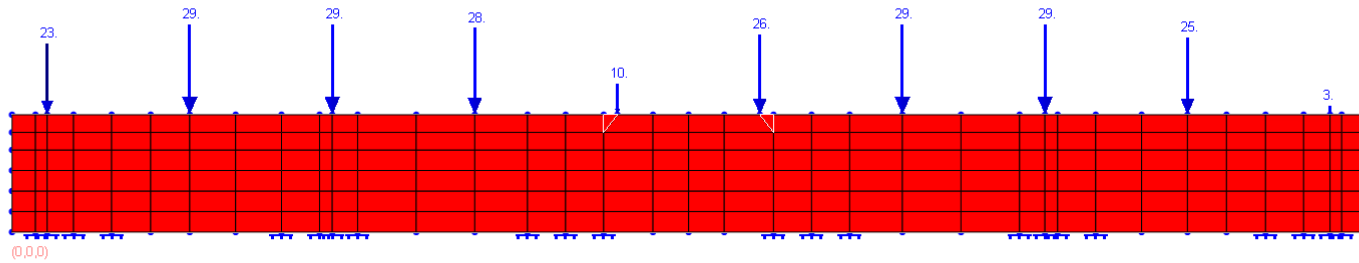
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Graphics View 1

Zoom 1.563X
Load Case LL5 (units: kips, ft)

LIVE LOAD 5



Loads determined from JACOBS design computations

Z Y
↑ ↑
Local/UCS Axes



p006958B

U:\ASP\807317_White River\PIER CAP\PierCap_UnitWidth_v1.lar
Last Analysis Run : 9/26/2019 12:57:23 PM

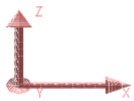
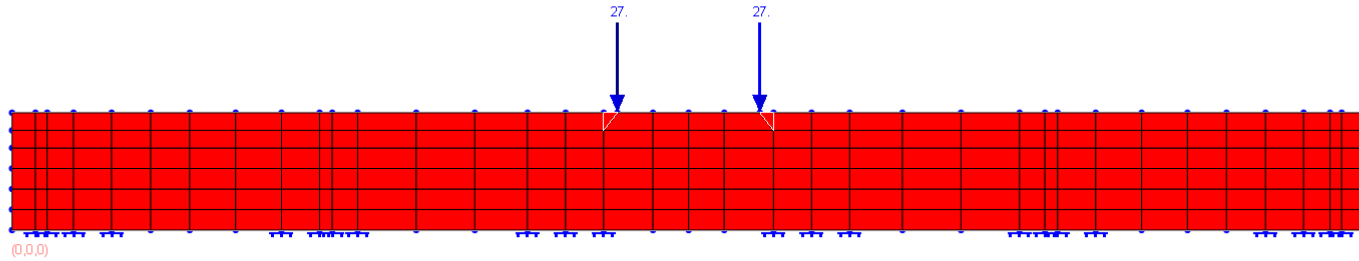
Page 1

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Graphics View 1

Zoom: 1.563X
Load Case LL6 (units: kips, ft)

LIVE LOAD 6



Loads determined from JACOBS design computations 
Local/UCS Axes



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U:\ASP\807317_White River\PIER CAP\PierCap_UnitWidth_v1.lar
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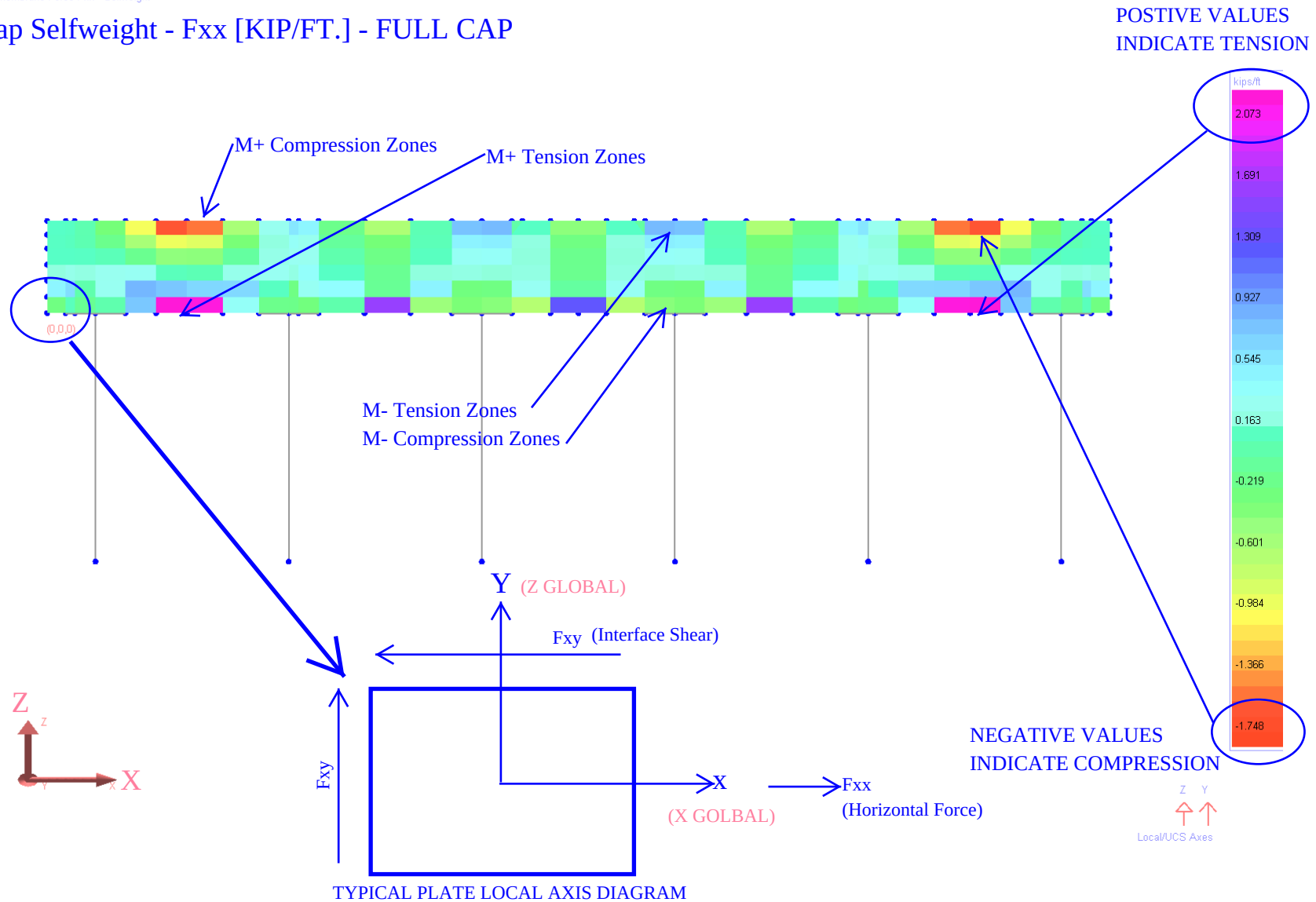
Page 1

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Graphics View 1

Zoom 1.563X
Plate Forces - Membrane Force Fxx - Selfweight

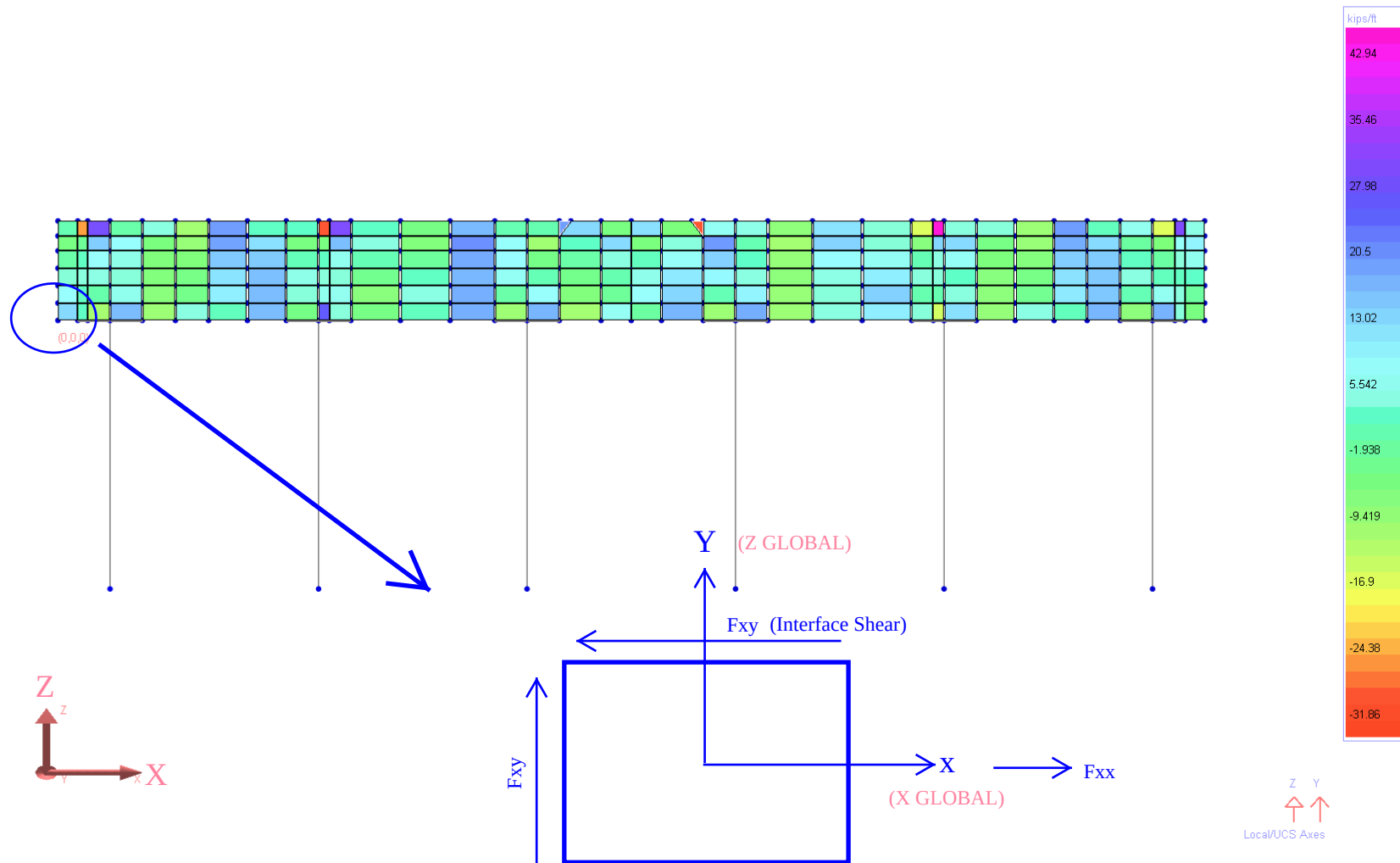
Pier Cap Selfweight - Fxx [KIP/FT.] - FULL CAP



Graphics View 1

Zoom 1.563X
Plate Forces - Membrane Shear Fxy - Strl Max

STRENGTH I - MAX - Interface Shear (Fxy) [KIP/FT.] - FULL CAP



TYPICAL PLATE LOCAL AXIS DIAGRAM



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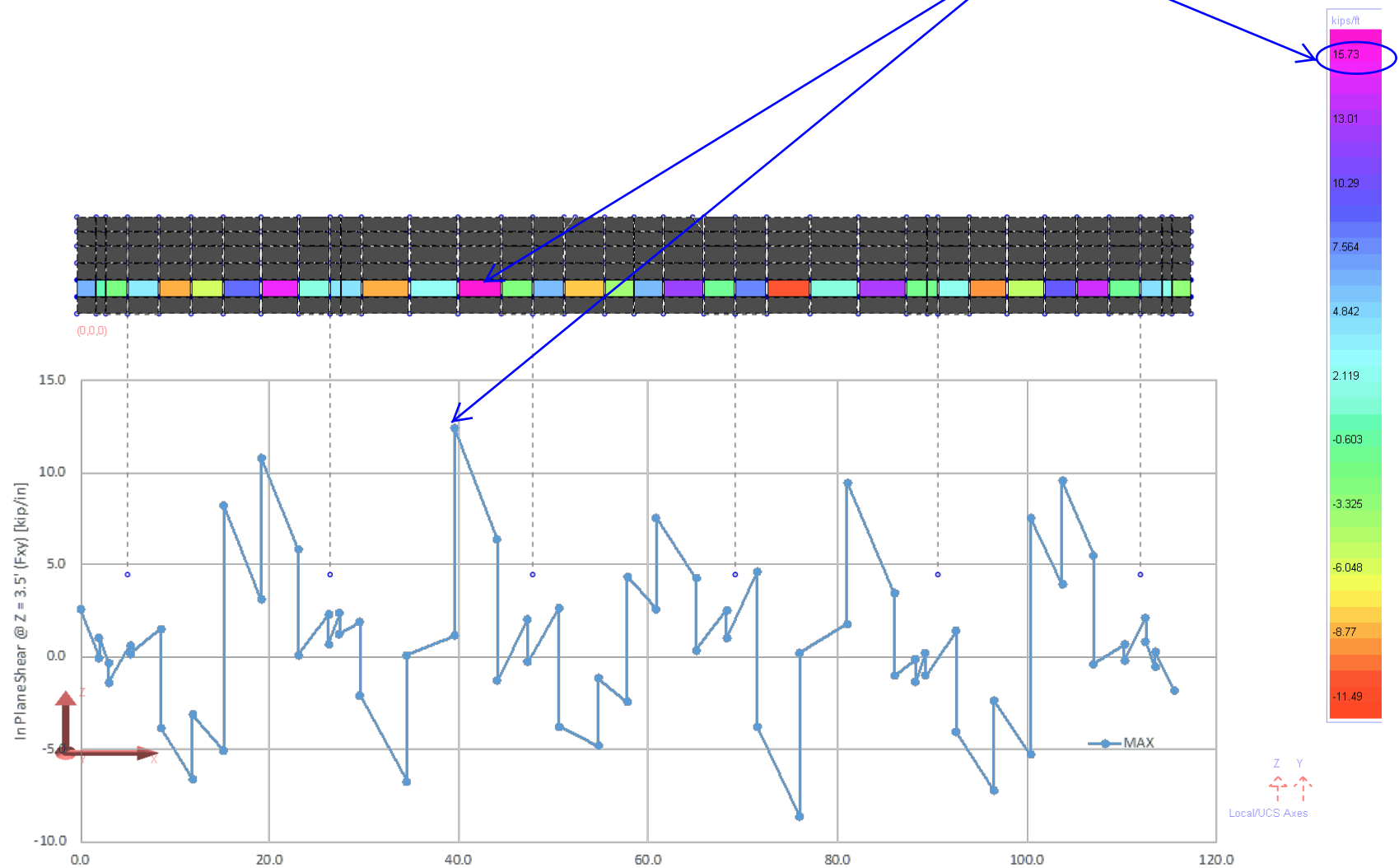
U:\ASP\807317_White River\PIER CAP\PierCap_UnitWidth_v1.lar
Last Analysis Run : 9/26/2019 4:23:48 PM

Graphics View 1

Zoom 1.563X
Plate Forces - Membrane Shear Fxy - Strl Max

Strength I Max - LL Max - $15.73 \text{ kip/ft} \times 8.5' / 12 = 11.14 \text{ kip/in}$

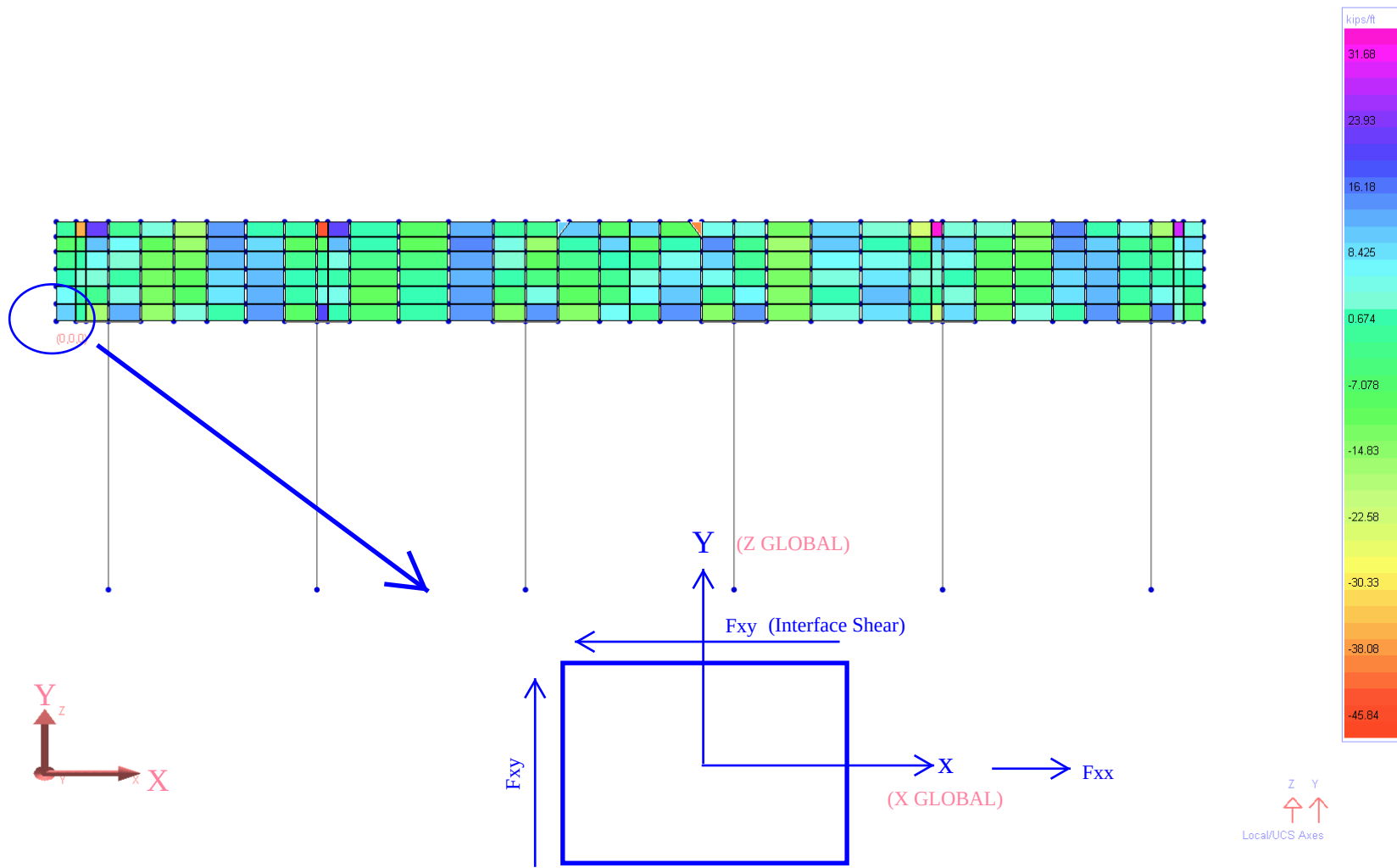
STRENGTH I - MAX Interface Shear (Fxy) [KIP/FT.] - @ 3.5' PLANE



Graphics View 1

Zoom 1.563X
Plate Forces - Membrane Shear Fxy - Strl Max

STRENGTH I - MIN - Interface Shear (Fxy) [KIP/FT.] - FULL CAP



TYPICAL PLATE LOCAL AXIS DIAGRAM



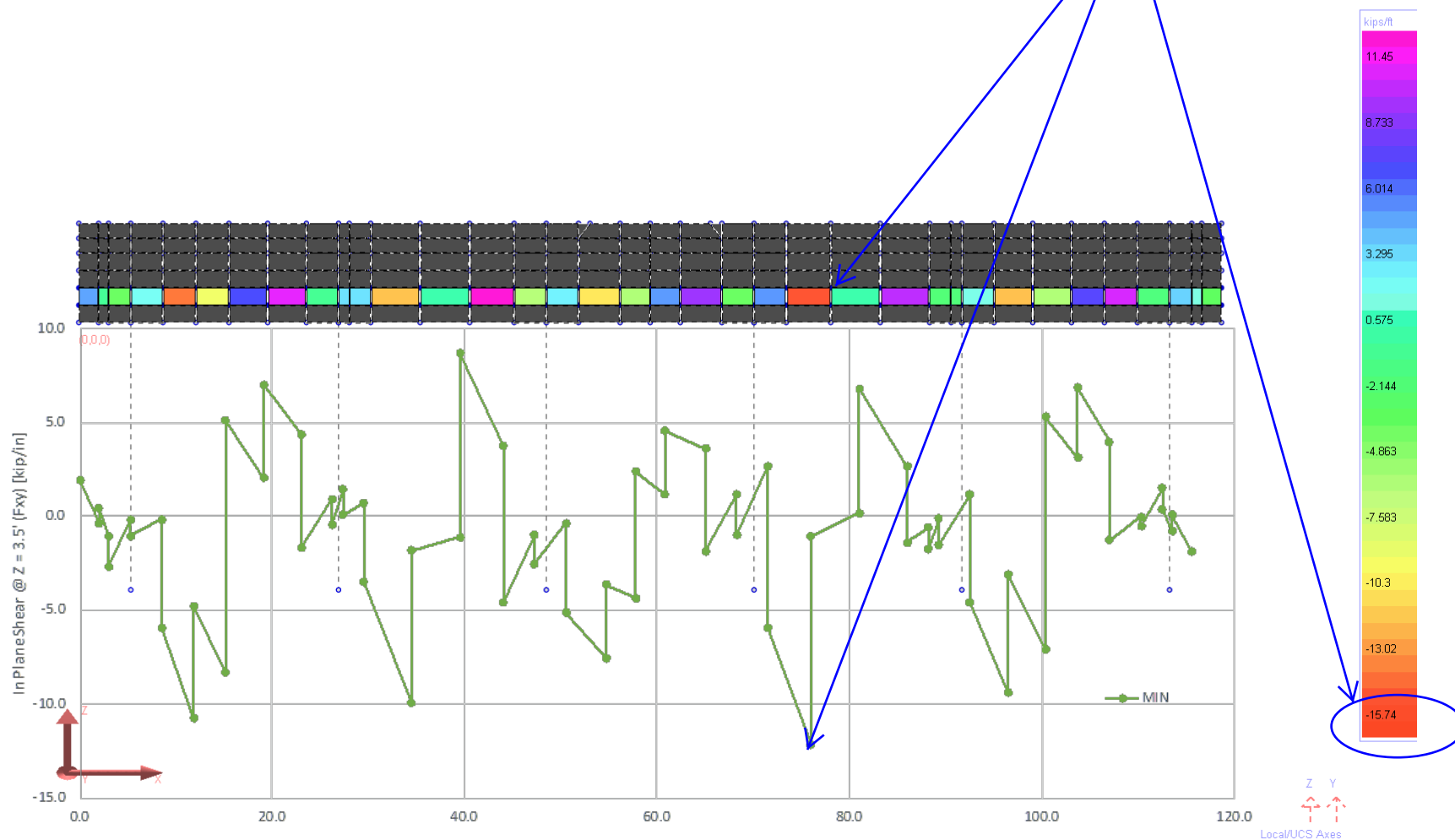
p006958B

Graphics View 1

Zoom: 1.563X
Plate Forces - Membrane Shear Fxy - Strl Max

STRENGTH I - MIN Interface Shear (Fxy) [KIP/FT.] - @ 3.5' PLANE

Strength I Max - LL Max - 15.74 kip/ft * 8.5/ 12 = 11.14 kip/in



Determine input loads for LARSA model from design calculations. Adjust loads to be applied to a unit width.

TOTAL WIDTH	8.500 [ft.]		
DW	1.5 [\]	LL	1.75 [\]
DC	1.25 [\]	IM	1.33 [\]

DC					
	DC1	DW	DC	DC/ UNIT	INPUT
1	-786.32	-90.64	-895.09	-105.30	-106.00
2	-830.49	-90.18	-938.71	-110.44	-111.00
3	-860.42	-90.93	-969.54	-114.06	-115.00
4	-870.72	-90.47	-979.28	-115.21	-116.00
5	-885.24	-90.58	-993.94	-116.93	-117.00
6	-884.94	-90.66	-993.73	-116.91	-117.00
7	-875.87	-91.10	-985.19	-115.90	-116.00
8	-864.06	-91.55	-973.92	-114.58	-115.00
9	-853.75	-93.04	-965.40	-113.58	-114.00
10	-767.94	-88.67	-874.34	-102.86	-103.00

LL 1					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-18.57	-30.02	-54.72	-6.44	-7.00
2	-113.50	-183.40	-334.36	-39.34	-40.00
3	-18.57	-30.02	-54.72	-6.44	-7.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00

60

LL 2					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-12.47	-20.14	-36.73	-4.32	-5.00
2	-94.59	-152.84	-278.64	-32.78	-33.00
3	-48.15	-77.81	-141.85	-16.69	-17.00
4	-94.59	-152.84	-278.64	-32.78	-33.00
5	-1.29	-2.09	-3.80	-0.45	-1.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
interface s	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00

LL 3					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-84.42	-136.41	-248.69	-29.26	-30.00
2	-107.07	-173.02	-315.42	-37.11	-38.00
3	-104.88	-169.48	-308.97	-36.35	-37.00
4	-23.75	-38.38	-69.97	-8.23	-9.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00

LL 4					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-64.55	-104.31	-190.16	-22.37	-23.00
2	-81.88	-132.31	-241.21	-28.38	-29.00
3	-82.72	-133.67	-243.69	-28.67	-29.00
4	-79.65	-128.70	-234.63	-27.60	-28.00
5	-17.61	-28.45	-51.87	-6.10	-7.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00

LL 5					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-64.55	-104.31	-190.16	-22.37	-23.00
2	-81.88	-132.31	-241.21	-28.38	-29.00
3	-82.72	-133.67	-243.69	-28.67	-29.00
4	-79.65	-128.70	-234.63	-27.60	-28.00
5	-27.94	-45.16	-82.32	-9.68	-10.00
6	-72.38	-116.96	-213.23	-25.09	-26.00
7	-82.72	-133.67	-243.69	-28.67	-29.00
8	-82.72	-133.67	-243.69	-28.67	-29.00
9	-70.14	-113.35	-206.64	-24.31	-25.00
10	-8.10	-13.09	-23.86	-2.81	-3.00

LL6				
		LL	LL/ UNIT	INPUT
5		222.00	26.12	27.00
6		222.00	26.12	27.00

Pier 1 LL/Lane w/ Impact 370 [kip.]
Assume equal distribution between girders 5/6

Results will be extracted from LARSA and compared to resistances calculated here. In plane shear results from LARA (Fxy) will be converted from a unit width /ft to a total pier cap width per in. (LARSA x (8'-2") / 12 in/ft)

Results from all Live load cases will be used to make a LL envelope.

Results from z=3.5' above the bottom of pier cap are shown below. For complete results see LARSA results.

Determine interface shear resistance per AASHTO 5.7.4.3. Conservatively ignore any contribution from concrete compression due to bending.

AASHTO Eq. 5.7.4.3-1 & 5.7.4.3-3

$$V_{ri} = \phi V_{ni}$$

$$V_{ni} = cA_{cv} + \mu (A_{vf}f_y + P_c)$$

Cohesion and Friction Factors per AASHTO 5.7.4.4

For concrete cast monolithically, cohesion and friction factors are shown below:

$$\begin{aligned} c &= 0.40 \text{ ksi} \\ \mu &= 1.4 \\ K_1 &= 0.25 \\ K_2 &= 1.5 \text{ ksi} \end{aligned}$$

For concrete placed against concrete not intentionally roughened, cohesion and friction factors are as follows:

$$\begin{aligned} c &= 0.075 \text{ ksi} \\ \mu &= 0.6 \\ K_1 &= 0.2 \\ K_2 &= 0.8 \text{ ksi} \end{aligned}$$

These calculations will conservatively use the reduced cohesion and friction factors for not intentionally roughened concrete shown above.

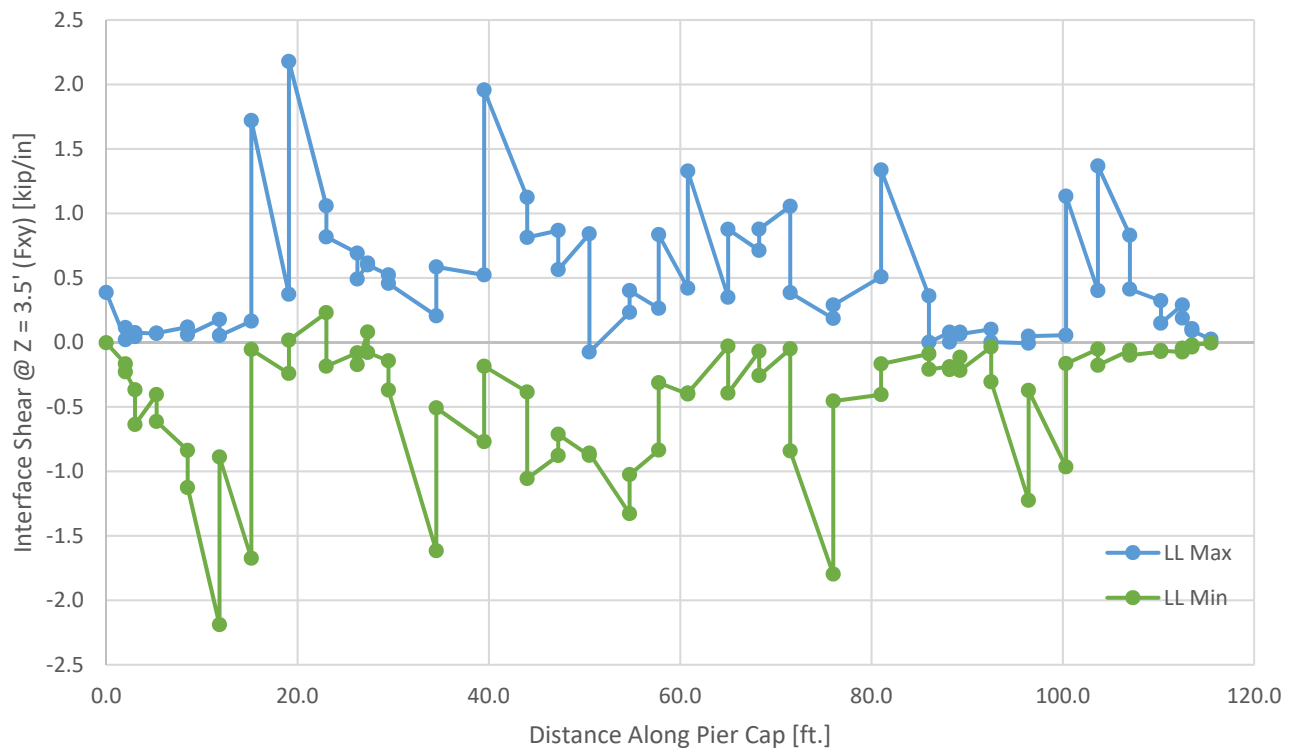
Vertical shear bar size	0.44 [in2]	Steel yield stress	60.0 [ksi]	**
Number of legs	4 []	Friction factor, μ	0.60 []	
Spacing of reinforcement	8.5 [in.]	Cohesion, c	0.075 [ksi]	
Cap width	102 [in.]	Resistance factor	0.90 []	
Factored steel interface shear resistance per AASHTO Eq. 5.7.4.3-3			6.71 [kip/in.]	
Factored concrete interface shear resistance per AASHTO Eq. 5.7.4.3-3			6.89 [kip/in.]	
Factored Total interface shear resistance per AASHTO Eq. 5.7.4.3-3			13.59 [kip/in.]	

** Note per AASHTO 5.7.4 "Where the required interface shear reinforcement in girder/slab design exceeds the area required to satisfy flexural shear requirements, additional reinforcement shall be provided to satisfy the interface shear requirements." i.e. all shear reinforcement can be used for interface shear resistance. Additional reinforcement is only required when the required interface shear reinforcement exceeds that required from beam design.

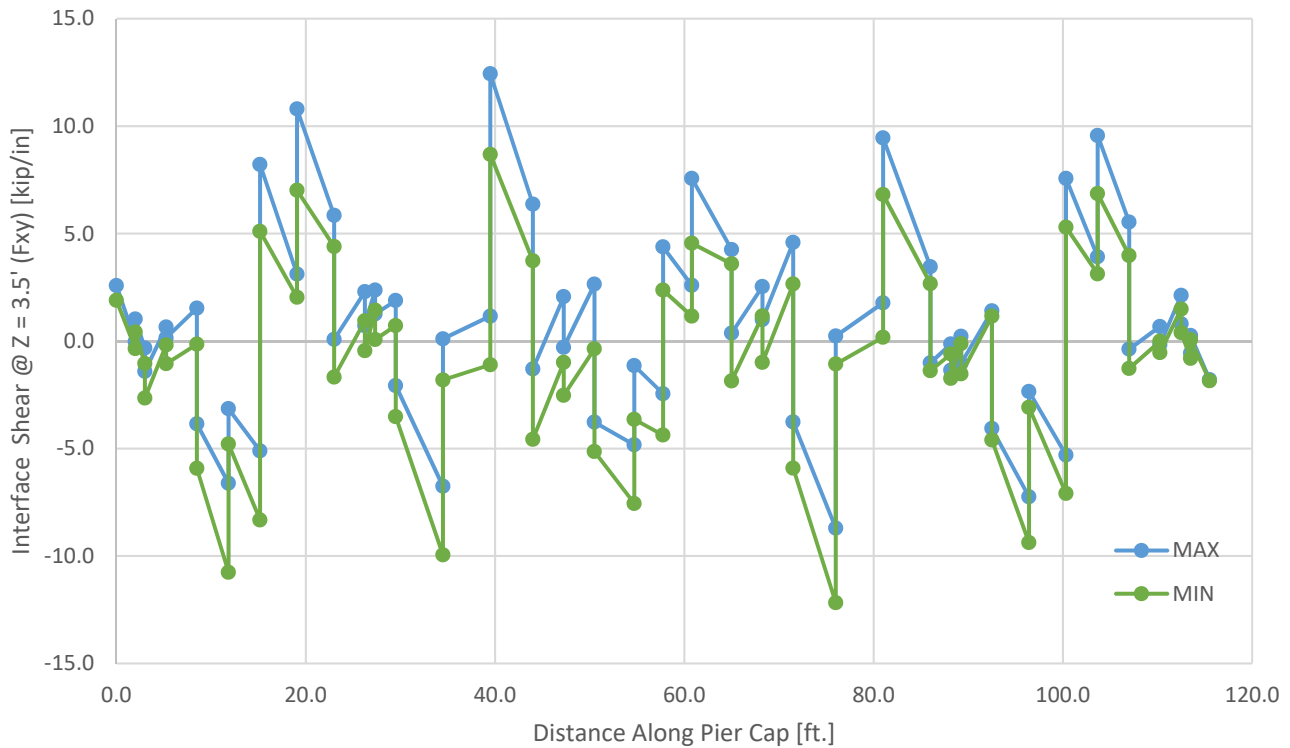
JOINT	PLATE	ID	X [FT.]	LL [kip/in.]		Str. I [kip/in.]		
				MAX	MIN	MAX	MIN	CONT.
75	37	3775	0.00	0.386	-0.003	2.580	1.898	2.580
76	37	3776	2.00	0.020	-0.166	-0.030	-0.357	-0.357
76	38	3876	2.00	0.115	-0.229	1.027	0.424	1.027
77	38	3877	3.00	0.045	-0.368	-0.323	-1.046	-1.046
77	39	3977	3.00	0.075	-0.637	-1.410	-2.656	-2.656
78	39	3978	5.25	0.068	-0.406	0.649	-0.180	0.649
78	40	4078	5.25	0.072	-0.613	0.146	-1.053	-1.053
79	40	4079	8.50	0.119	-0.838	1.529	-0.145	1.529
79	41	4179	8.50	0.060	-1.125	-3.849	-5.924	-5.924
80	41	4180	11.83	0.178	-2.189	-6.615	-10.757	-10.757
80	42	4280	11.83	0.053	-0.889	-3.145	-4.793	-4.793
81	42	4281	15.17	0.165	-1.674	-5.107	-8.326	-8.326
81	43	4381	15.17	1.720	-0.055	8.214	5.106	8.214
82	43	4382	19.08	0.373	-0.242	3.114	2.038	3.114
82	44	4482	19.08	2.179	0.017	10.799	7.016	10.799
83	44	4483	23.00	1.059	0.230	5.845	4.394	5.845
83	45	4583	23.00	0.817	-0.185	0.078	-1.676	-1.676
84	45	4584	26.25	0.692	-0.081	2.294	0.942	2.294
84	46	4684	26.25	0.490	-0.173	0.713	-0.447	0.713
85	46	4685	27.33	0.615	0.080	2.369	1.434	2.369
85	47	4785	27.33	0.601	-0.079	1.259	0.070	1.259
86	47	4786	29.50	0.524	-0.143	1.887	0.720	1.887
86	48	4886	29.50	0.457	-0.370	-2.073	-3.520	-3.520
87	48	4887	34.50	0.206	-1.616	-6.759	-9.947	-9.947
87	49	4987	34.50	0.586	-0.508	0.102	-1.812	-1.812
88	49	4988	39.50	0.523	-0.770	1.160	-1.102	1.160
88	50	5088	39.50	1.957	-0.185	12.437	8.688	12.437
89	50	5089	44.00	1.124	-0.385	6.373	3.731	6.373
89	51	5189	44.00	0.814	-1.056	-1.301	-4.573	-4.573
90	51	5190	47.25	0.868	-0.878	2.064	-0.991	2.064
90	52	5290	47.25	0.564	-0.713	-0.290	-2.524	-2.524
91	52	5291	50.50	0.842	-0.877	2.645	-0.363	2.645
91	53	5391	50.50	-0.075	-0.860	-3.770	-5.143	-5.143
92	53	5392	54.71	0.232	-1.329	-4.828	-7.559	-7.559
92	54	5492	54.71	0.401	-1.026	-1.145	-3.641	-3.641
93	54	5493	57.75	0.264	-0.836	-2.449	-4.375	-4.375
93	55	5593	57.75	0.836	-0.313	4.379	2.369	4.379
94	55	5594	60.79	0.421	-0.401	2.593	1.156	2.593
94	56	5694	60.79	1.329	-0.393	7.565	4.552	7.565
95	56	5695	65.00	0.350	-0.029	4.256	3.592	4.256
95	57	5795	65.00	0.877	-0.394	0.368	-1.856	-1.856
96	57	5796	68.25	0.713	-0.069	2.536	1.168	2.536
96	58	5896	68.25	0.878	-0.258	0.994	-0.993	0.994
97	58	5897	71.50	1.056	-0.050	4.587	2.651	4.587
97	59	5997	71.50	0.385	-0.842	-3.764	-5.911	-5.911
98	59	5998	76.00	0.185	-1.797	-8.702	-12.172	-12.172
98	60	6098	76.00	0.289	-0.455	0.234	-1.068	-1.068
99	60	6099	81.00	0.508	-0.405	1.777	0.178	1.777
99	61	6199	81.00	1.337	-0.167	9.450	6.818	9.450
100	61	61100	86.00	0.360	-0.089	3.457	2.671	3.457
100	62	62100	86.00	0.001	-0.209	-1.014	-1.380	-1.380
101	62	62101	88.17	0.079	-0.189	-0.134	-0.602	-0.602
101	63	63101	88.17	0.002	-0.212	-1.362	-1.736	-1.736
102	63	63102	89.25	0.079	-0.116	0.222	-0.119	0.222
102	64	64102	89.25	0.064	-0.218	-1.038	-1.532	-1.532
103	64	64103	92.50	0.102	-0.036	1.402	1.161	1.402
103	65	65103	92.50	0.002	-0.306	-4.067	-4.606	-4.606

104	65	65104	96.42	-0.007	-1.225	-7.246	-9.379	-9.379
104	66	66104	96.42	0.048	-0.373	-2.345	-3.083	-3.083
105	66	66105	100.33	0.055	-0.966	-5.302	-7.090	-7.090
105	67	67105	100.33	1.134	-0.165	7.570	5.298	7.570
106	67	67106	103.67	0.401	-0.053	3.919	3.125	3.919
106	68	68106	103.67	1.369	-0.178	9.564	6.858	9.564
107	68	68107	107.00	0.830	-0.060	5.535	3.976	5.535
107	69	69107	107.00	0.413	-0.100	-0.376	-1.273	-1.273
108	69	69108	110.25	0.323	-0.072	0.676	-0.014	0.676
108	70	70108	110.25	0.148	-0.063	-0.170	-0.540	-0.540
109	70	70109	112.50	0.290	-0.075	2.128	1.488	2.128
109	71	71109	112.50	0.188	-0.045	0.798	0.391	0.798
110	71	71110	113.50	0.106	-0.037	-0.561	-0.811	-0.811
110	72	72110	113.50	0.091	-0.020	0.261	0.066	0.261
111	72	72111	115.50	0.024	-0.006	-1.794	-1.846	-1.846

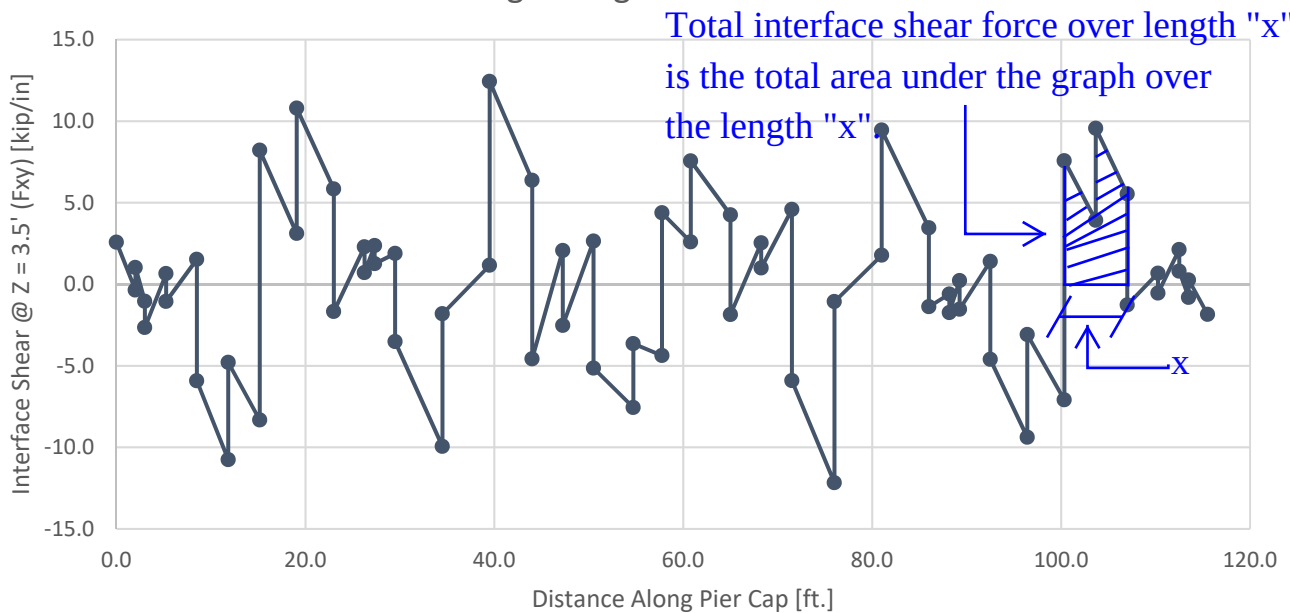
Controlling LL Interface Shear



Strength I Interface Shear



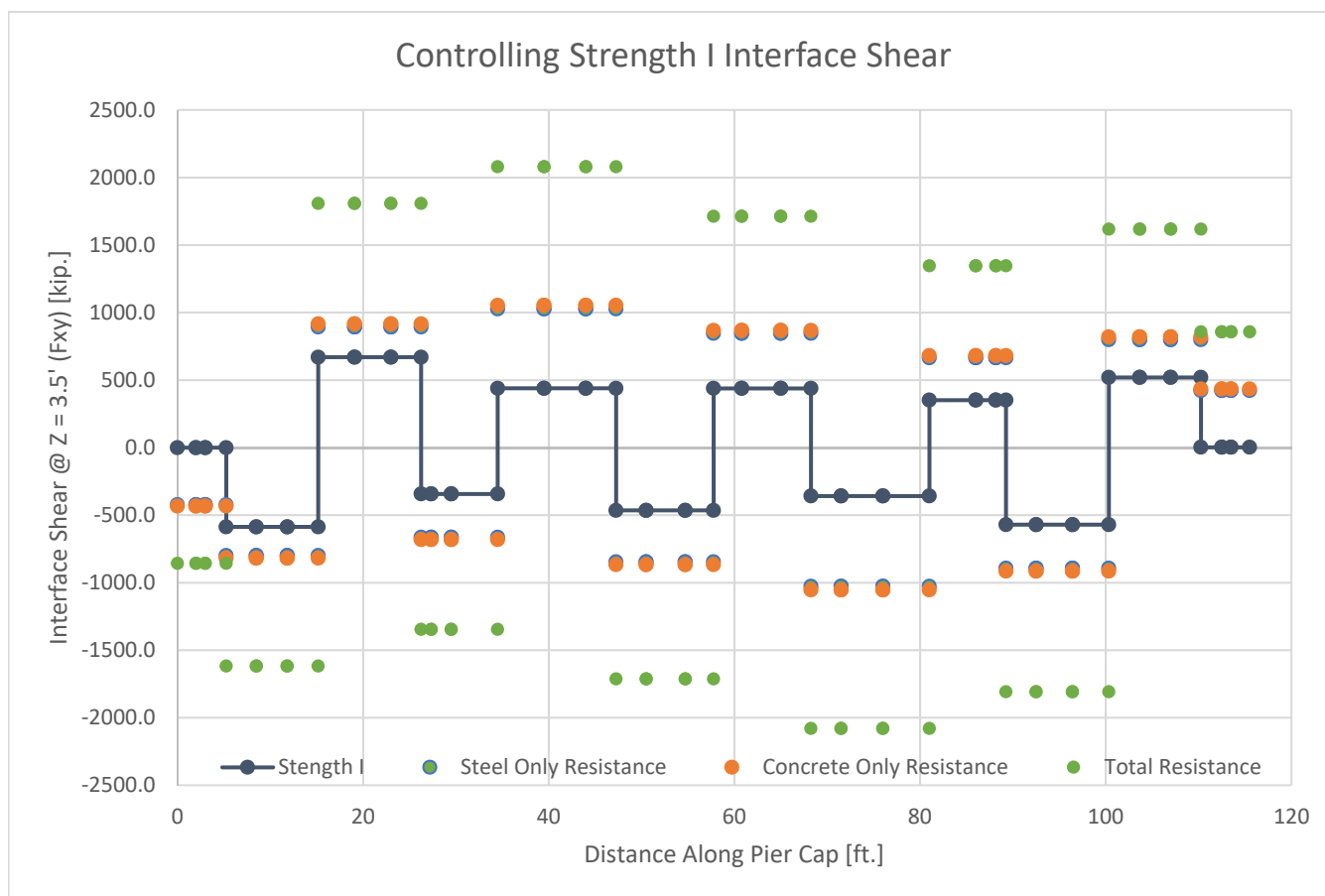
Controlling Strength I Interface Shear



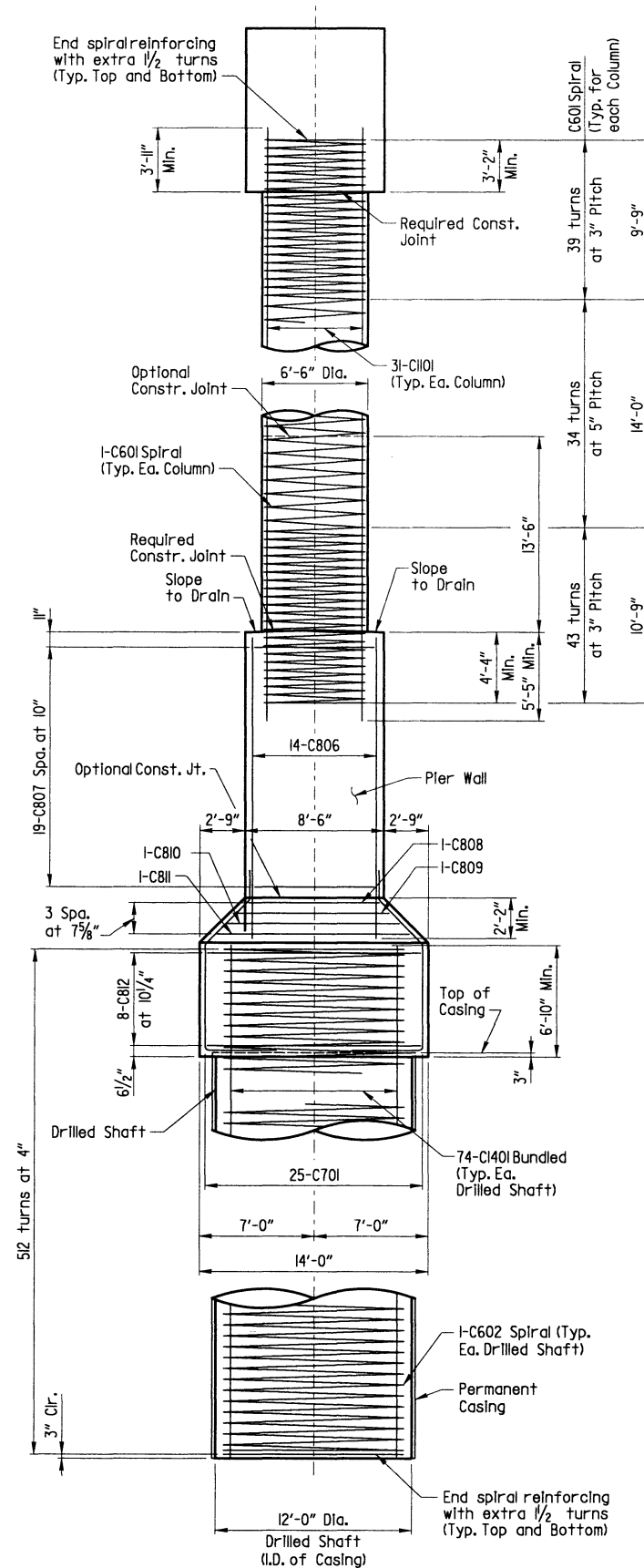
The total interface shear force needs to be transferred between faces from over the distance from the point of maximum moment to the Cl of support. The table below tabulates the total shear force over this area and total resistance. It is assumed that the point of maximum moment occurs at midspan between columns.

ID	X [FT.]	Str. I [kip/in.]	x1-x0 [in.]	(y0+y1)/ 2 [kip/in]	Fxy [kip]	Total Fxy [kip]	Conc. Resist. [kip]	Steel Resist. [kip]	Total Resist. [kip]	CONC. DC Ratio	STEEL DC Ratio	TOTAL DC Ratio
3775	0	2.580				-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3776	2	-0.357	24	1.112	26.68	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3876	2	1.027	0	0.335	0.00	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3877	3	-1.046	12	-0.010	-0.12	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3977	3	-2.656	0	-1.851	0.00	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3978	5.25	0.649	27	-1.004	-27.10	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
4078	5.25	-1.053	0	-0.202	0.00	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4079	8.5	1.529	39	0.238	9.27	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4179	8.5	-5.924	0	-2.197	0.00	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4180	11.8333	-10.757	40	-8.340	-333.62	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4280	11.8333	-4.793	0	-7.775	0.00	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4281	15.1667	-8.326	40	-6.559	-262.37	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4381	15.1667	8.214	0	-0.056	0.00	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4382	19.0833	3.114	47	5.664	266.21	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4482	19.0833	10.799	0	6.956	0.00	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4483	23	5.845	47	8.322	391.13	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4583	23	-1.676	0	2.084	0.00	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4584	26.25	2.294	39	0.309	12.05	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4684	26.25	0.713	0	1.504	0.00	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4685	27.3333	2.369	13	1.541	20.04	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4785	27.3333	1.259	0	1.814	0.00	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4786	29.5	1.887	26	1.573	40.90	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4886	29.5	-3.520	0	-0.816	0.00	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4887	34.5	-9.947	60	-6.734	-404.02	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4987	34.5	-1.812	0	-5.880	0.00	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
4988	39.5	1.160	60	-0.326	-19.56	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5088	39.5	12.437	0	6.798	0.00	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5089	44	6.373	54	9.405	507.86	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5189	44	-4.573	0	0.900	0.00	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5190	47.25	2.064	39	-1.255	-48.93	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5290	47.25	-2.524	0	-0.230	0.00	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5291	50.5	2.645	39	0.060	2.36	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5391	50.5	-5.143	0	-1.249	0.00	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5392	54.7083	-7.559	50.5	-6.351	-320.72	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5492	54.7083	-3.641	0	-5.600	0.00	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5493	57.75	-4.375	36.5	-4.008	-146.29	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5593	57.75	4.379	0	0.002	0.00	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5594	60.7917	2.593	36.5	3.486	127.25	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5694	60.7917	7.565	0	5.079	0.00	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5695	65	4.256	50.5	5.910	298.47	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5795	65	-1.856	0	1.200	0.00	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5796	68.25	2.536	39	0.340	13.27	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5896	68.25	0.994	0	1.765	0.00	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
5897	71.5	4.587	39	2.791	108.84	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
5997	71.5	-5.911	0	-0.662	0.00	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
5998	76	-12.172	54	-9.042	-488.25	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
6098	76	-1.068	0	-6.620	0.00	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
6099	81	1.777	60	0.354	21.27	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
6199	81	9.450	0	5.614	0.00	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
61100	86	3.457	60	6.454	387.21	351.61	664.2	681.6	1345.8	0.53	0.52	0.26

62100	86	-1.380	0	1.039	0.00	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
62101	88.1667	-0.602	26	-0.991	-25.76	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
63101	88.1667	-1.736	0	-1.169	0.00	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
63102	89.25	0.222	13	-0.757	-9.84	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
64102	89.25	-1.532	0	-0.655	0.00	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
64103	92.5	1.402	39	-0.065	-2.54	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
65103	92.5	-4.606	0	-1.602	0.00	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
65104	96.4167	-9.379	47	-6.993	-328.65	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
66104	96.4167	-3.083	0	-6.231	0.00	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
66105	100.333	-7.090	47	-5.086	-239.06	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
67105	100.333	7.570	0	0.240	0.00	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
67106	103.667	3.919	40	5.744	229.78	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
68106	103.667	9.564	0	6.741	0.00	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
68107	107	5.535	40	7.549	301.97	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
69107	107	-1.273	0	2.131	0.00	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
69108	110.25	0.676	39	-0.298	-11.63	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
70108	110.25	-0.540	0	0.068	0.00	2.33	422.6	433.8	856.4	0.01	0.01	0.00
70109	112.5	2.128	27	0.794	21.43	2.33	422.6	433.8	856.4	0.01	0.01	0.00
71109	112.5	0.798	0	1.463	0.00	2.33	422.6	433.8	856.4	0.01	0.01	0.00
71110	113.5	-0.811	12	-0.007	-0.08	2.33	422.6	433.8	856.4	0.01	0.01	0.00
72110	113.5	0.261	0	-0.275	0.00	2.33	422.6	433.8	856.4	0.01	0.01	0.00
72111	115.5	-1.846	24	-0.793	-19.02	2.33	422.6	433.8	856.4	0.01	0.01	0.00
										Concrete Only DC	Steel Only DC	Total DC
From the table and graph above, it can be seen that the concrete alone (ignoring steel) has sufficient capacity to resist the applied interface shear. Additonally, the steel resistance alone (ignoring concrete) has sufficient capacity to resist the interface shear applied.								Max.	0.75	0.73	0.37	

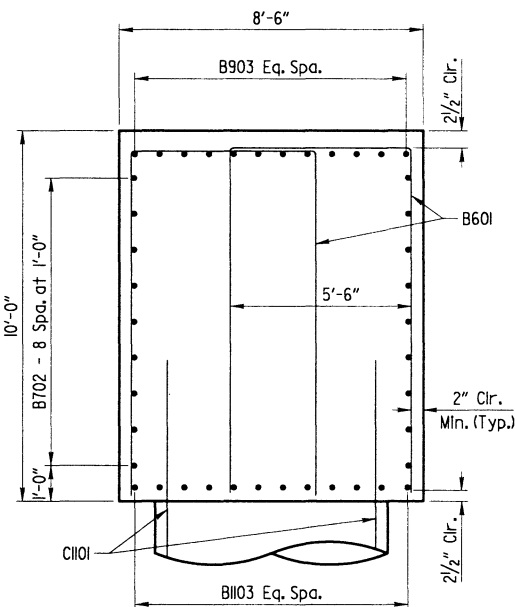


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7-29-2016				6	ARK.			
				JOB NO.		BB0610	93	262
				07343	- PIERS -			56766



END VIEW

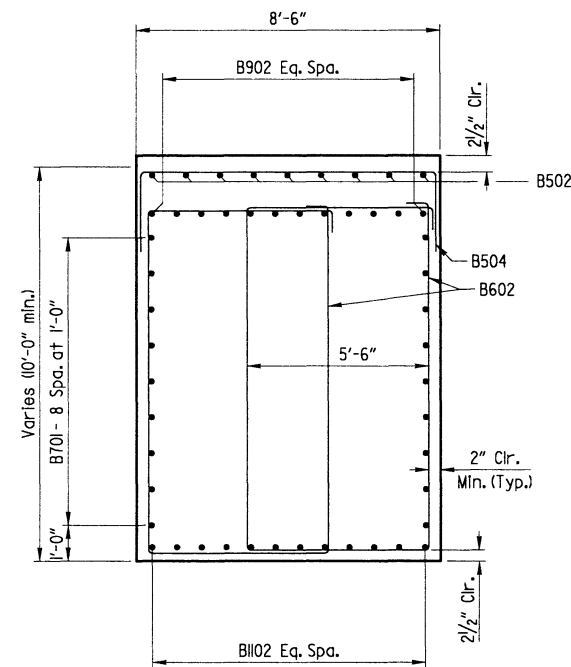
Pier 1 shown (Pier 2 similar)



SECTION A-A

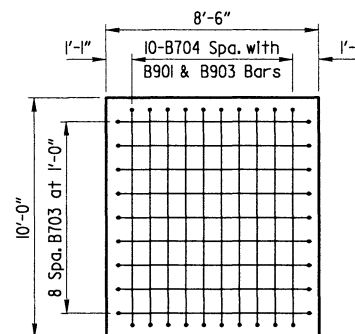
Scale 3/8" = 1'-0"

Note: Spiral bars C60 not shown for clarity.



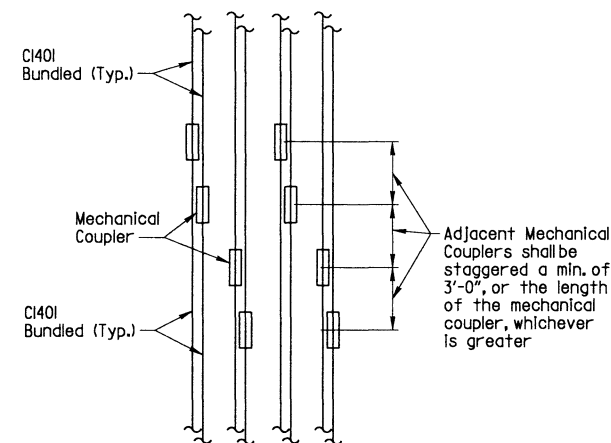
SECTION B-B

Scale 3/8" = 1'-0"



SECTION G-G

Scale 1/4" = 1'-0"



DRILLED SHAFT BAR SPLICE DETAIL

Scale: No Scale

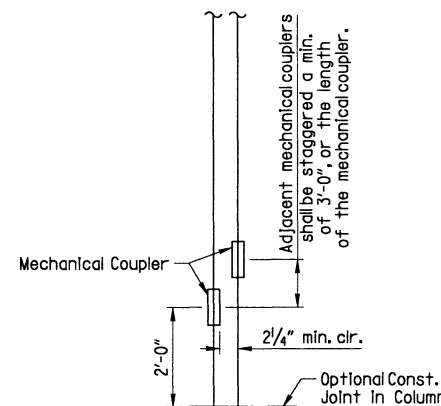
MECHANICAL COUPLER AND SPLICE NOTES:

Contractor shall be required to use Mechanical couplers to splice reinforcing bars whose lengths given in the Bar List exceeds 60'-0". The bars shall be assembled as shown in "DRILLED SHAFT BAR SPLICE DETAIL".

The contractor may choose location of splices for convenience so long as no bar to be spliced is less than 5'-0" in length and no closer than 10'-0" from top of shaft.

The contractor may also elect to splice bars whose lengths are less than 60'-0" to provide ease of construction so long as the previously mentioned requirements are met.

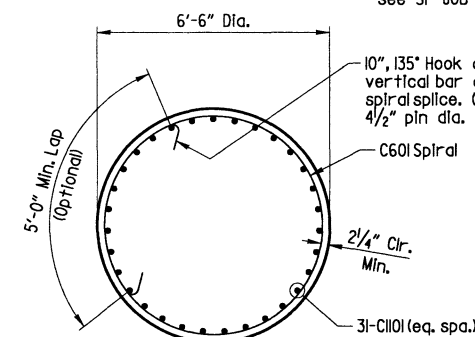
Mechanical couplers shall conform to the requirements of SP JOB BB0610 "SPlicing REINFORCING STEEL" and shall maintain the clearances shown in "DRILLED SHAFT BAR SPLICE DETAIL". Not more than alternate bars shall be spliced at a given location. Payment for mechanical couplers shall be subsidiary to the item "DRILLED SHAFT (144" Dia.)". The couplers shall develop at least 125% of the specified yield strength of the bar.



OPTIONAL COLUMN BAR DETAIL

Scale: No Scale

Note: Mechanical couplers in column shall maintain the clearances shown. Their payment shall be subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)". The OPL approved couplers shall develop at least 125% of the specified yield strength of the bar.



SECTION C-C

Scale 3/8" = 1'-0"

PIER NOTES:

Concrete in the cap and columns shall be Class "S" with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete in the Drilled Shafts shall be Class "S" as modified by SP Job BB0610 "Drilled Shaft Foundations". Concrete in the pier wall shall be Class "B" with a minimum 90 day compressive strength, $f'_c = 3,500$ psi meeting the requirements of SP Job BB0610 "Class B Concrete - Bridge", "Class B Concrete for Structures", and Section 802. All Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M322, Type A, with mill test report, Grade 60 (yield strength = 60,000 psi.).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

3/4" dia. Anchors shall be placed in bent column for clearance gauge. For location, see Dwg. No. 56858.

For additional information see layout.

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, with mill test report (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum dia. of 0.75".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel-Bridge (Grade 60)". No additional payment shall be made for spacers, optional splices, or bracing needing for assembly, shipping, handling, or erecting.

Contractor may elect to use a different number of spiral lapped splices per column. In no case shall a spiral be lapped within the top or bottom 1/4 of the column height or top 15' of the pier wall.

Spirals in spiral reinforcement shall be lapped a minimum of 80 bar diameters.

Spiral reinforcement at lapped splices shall be terminated by a 135° hook with a 10" tall around a vertical bar. Hook may be field bent. Ends of spirals not lapped shall be terminated with 1/2 turns and a 135° hook with a 10" tall around a vertical bar.

Permanent casing at Piers 1 & 2 shall be painted using two coats of Series 45H-413, Thene-Tar, 10 mils/coat or approved equal in accordance with SP Job BB0610 "Drilled Shaft Foundations". This protection shall extend from Elevation 140 to Elevation 170. No painting is required on the portion of the permanent casing embedded in concrete. Painting of permanent casing will not be paid for separately but will be considered subsidiary to the item "Drilled Shaft (144" Dia.)".

Post Grouting of Drilled Shafts for Piers 1 and 2 will be required, see SP JOB BB0610 "Post Grouting of Drilled Shaft Foundations".

Revised sheet to reflect the addition of alternate substructure and foundation change on 860' unit. MAA 7/29/16

ALTERNATE NOS. 1 AND 2

SHEET 2 OF 5

DETAILS OF PIERS 1 & 2

BRIDGE OVER WHITE RIVER

PRAIRIE COUNTY

ROUTE 40 SECTION 42

ARKANSAS STATE HIGHWAY COMMISSION

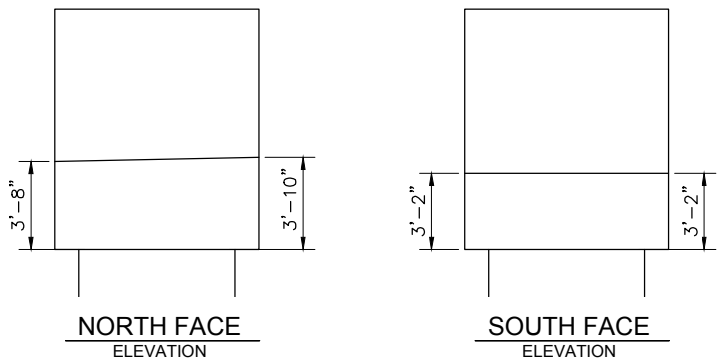
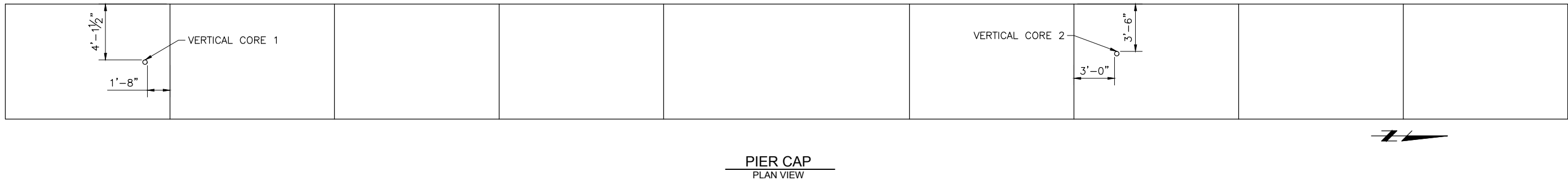
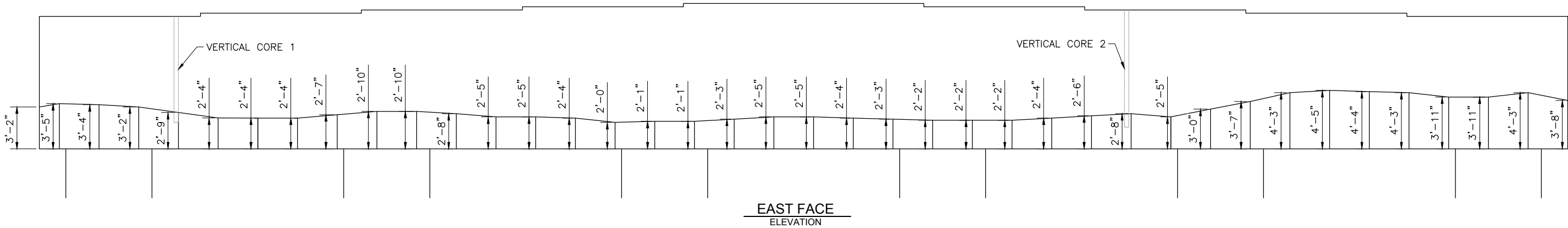
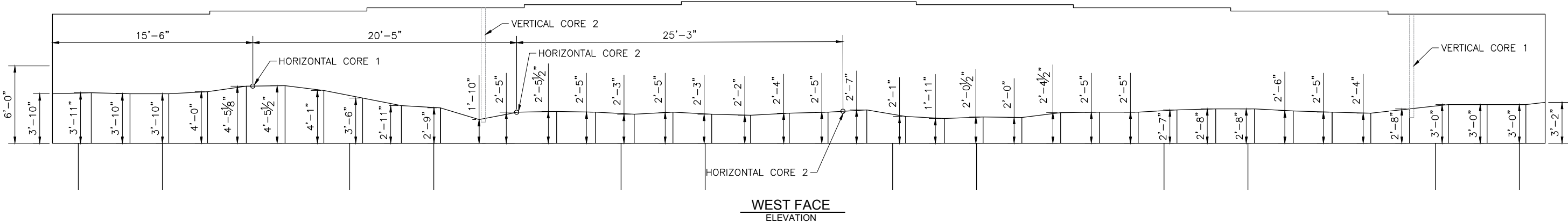
LITTLE ROCK, ARKANSAS



BRIDGE ENGINEER
PRINT DATE: 8/29/2016

DRAWN BY: SGK DATE: 06/13/2016 FILENAME: bbb0610.pl2.dgn
CHECKED BY: JDS DATE: 07/13/2016
DESIGNED BY: SSS DATE: 06/07/2016 SCALE: 3/8" = 1'-0"
BRIDGE NO. 07343 DRAWING NO. 56766

Z:\COMMON\BR\AV\O\pier 1\406759-ELE-001-20190921.dwg Plotted: Bravo, Herman 24 Sep 2019 04:27:36 PM



- NOTES:
1. DIMENSIONS WERE TAKEN EVERY 3 FEET ON WEST AND EAST FACE.
 2. JOINT ELEVATIONS ON WEST FACE WERE TAKEN BY FIELD ENGINEERS ALMAAROOF AND BRAVO USING A MANLIFT.
 3. JOINT ELEVATIONS ON EAST FACE WERE MEASURED USING DRONE FOOTAGE.

DRAWN	HRB	DATE	21 SEP 2019	REV.		DESCRIPTION	BY	DATE
DESIGNED		DATE					HRB	21 SEP 2019
CHECKED		DATE						
APPROVED		DATE						

PARSONS | **Mahan**
Joint Venture

BRIDGE OVER WHITE RIVER
PRAIRIE COUNTY
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

JOINT ELEVATION
PIER 1

Page 26 of 154
406759-P1-ELE-001

AHTD Job No. BB0610

White River Str. & Apprs(F)

FAP No. IM-40-4(82)200

SUBSTRUCTURE DESIGN NON-SEISMIC LOADS MAIN UNIT

PIER NOS. 1 and 2 COLUMN DESIGN

PMJV Appeal 9-27-2019
Memo contained an additional
4 pages of JACOBS
Calculations used in original
2015 design, removed from
this package.
Available if desired.

PROJECT: White River - Main Unit - Substructure - Piers 1 and 2 Column Design

LOADS

Pier View : Upstation.
Load Cases: 32

INPUT LOADS

Loadcase ID: DC1 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-786.32
1	2	Y	-830.49
1	3	Y	-860.42
1	4	Y	-870.72
1	5	Y	-885.24
1	6	Y	-884.94
1	7	Y	-875.87
1	8	Y	-864.06
1	9	Y	-853.75
1	10	Y	-767.94

Loadcase ID: DW1 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-90.64
1	2	Y	-90.18
1	3	Y	-90.93
1	4	Y	-90.47
1	5	Y	-90.58
1	6	Y	-90.66
1	7	Y	-91.10
1	8	Y	-91.55
1	9	Y	-93.04
1	10	Y	-88.67

Loadcase ID: LL1 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-18.57
1	2	Y	-113.50
1	3	Y	-18.57
1	1	Y	-30.02
1	2	Y	-183.40
1	3	Y	-30.02

Loadcase ID: LL2 Name:
Multiplier = 1.000

Note: All blue boxes contain Jacobs generated loads which were used as inputs in Parsons model which transfer through the pier 1 pier cap. This is done to confirm both teams using same starting data. The total scope of the original Jacobs calculation package contains additional information not applicable to this review.

PROJECT: White River - Main Unit - Substructure - Piers 1 and 2 Column Design

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-12.47
1	2	Y	-94.59
1	3	Y	-48.15
1	4	Y	-94.59
1	5	Y	-1.29
1	1	Y	-20.14
1	2	Y	-152.84
1	3	Y	-77.81
1	4	Y	-152.84
1	5	Y	-2.08

Loadcase ID: LL3 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-84.42
1	2	Y	-107.07
1	3	Y	-104.88
1	4	Y	-23.75
1	1	Y	-136.41
1	2	Y	-173.02
1	3	Y	-169.48
1	4	Y	-38.38

Loadcase ID: LL4 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-64.55
1	2	Y	-81.88
1	3	Y	-82.72
1	4	Y	-79.65
1	5	Y	-17.61
1	1	Y	-104.31
1	2	Y	-132.31
1	3	Y	-133.67
1	4	Y	-128.70
1	5	Y	-28.45

Loadcase ID: LL5 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-64.55
1	2	Y	-81.88
1	3	Y	-82.72
1	4	Y	-79.65
1	5	Y	-27.94

Note: Shaded Values Represent Input

DC1 is the total non-composite DC Load and DC2 is the total composite DC Load.

DC Loads:

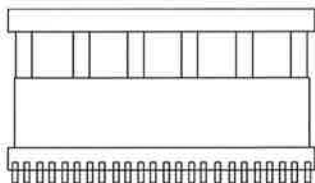
DC Loads are the Sum of DC1 and DC2.

	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6	Girder 7	Girder 8	Girder 9	Girder 10	
Bent 9	0	0	0	0	0	0	0	0	0	0	
Pier 1	786.32	830.49	860.42	870.72	885.24	884.94	876.87	864.06	853.75	767.94	8480.75
Pier 2	787.02	830.92	860.71	871.57	885.12	886.05	876.55	863.79	854.78	769.19	8485.70
Bent 10	0	0	0	0	0	0	0	0	0	0	

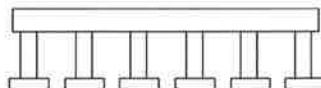
Add'l DC Loads: Displaced Concrete for Shaft/Footing RCPier Run

Since RCPier will not allow a model with both multiple columns (above) and a solid shaft (below) separate runs are made for the design of the cap and columns above the shaft and for the design of the shaft and footing. The model for the design of the shaft and footing have the shaft extending from the top of footing to the bottom of cap. Refer to sketches below.

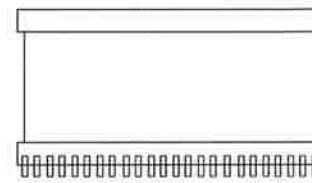
Actual Condition:



RCPier Model for Cap & Column Design:



RCPier Model for Shaft & Footing Design:



In the RCPier Model for the shaft and footing design, there is additional concrete over the length of the shaft/column where there is actually only the multiple columns. An upward uniform dead load (DC) force must be added to offset the additional concrete that is not present in the actual condition. This upward dead load force is equal to the difference of the weight of the concrete in the multiple columns versus the weight of the concrete in the solid shaft.

T/shaft Elevation = 196.0
Concrete unit wt. = 0.145 kcf per AASHTO Table 3.5.1-1
Shaft area, in plan, of the shaft = 949.25 sq. ft.
Number of columns = 6
Diameter of col's = 6.50 ft.
Sum of column areas = 199.10 sq. ft.
Difference in area between col's and shaft = 750.15 sq. ft.

Dead load (DC) force to offset weight difference between columns and shaft = 108.77 klf

from: to:
y1/L y2/L
0.700 0.954

LL - Live Loads: 905.16 917.46 939.22 944.72 961.81 957.38 953.98 943.02 941 879.26

Piers 1 and 2 have 6 columns and 10 girders. The columns are evenly spaced and centered about the CL of the structure.

	Lane (k)	HL93 (k)	2HL93 (k)	Without Impact		With Impact	
				Case 1	Case 2	Case 1	Case 2
Bent 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pier 1	225.40	71.88	139.49	297.28	328.40	321.00	369.83
Pier 2	225.40	71.88	139.49	297.28	328.40	321.00	369.83
Bent 10	0	0.00	0.00	0.00	0.00	0.00	0.00

Max. react. at int. support:

From file "main_unit_LL_Pier1&2.std"

max. lane react. at Pier1&2 = 225.40 k
max. 1 truck react. at Pier1&2 = 71.88 k
max. 2 trucks react. at Pier1&2 = 139.49 k

Case 1 is Equivalent to Lane + HL93

Case 2 is Equivalent to 0.9 * (Lane + 2HL93)

By inspection, Tandem will not govern over Truck for these span lengths.

Pier	w/o Impact (k/ln. or k/truck)	
	Lane	Truck
Bent 9	0.00	0.00
Pier 1	202.86	125.54
Pier 2	202.86	125.54
Bent 10	0.00	0.00

Lane is (1.0 * Lane) if Case 1 governs or is (0.9 * Lane) if Case 2 (Double Truck Case) governs.

Truck is (1.0 * HL93) if Case 1 governs or is (0.9 * 2HL93) if Case 2 (Double Truck Case) governs.

These loads will be used to determine live loads on cap based on wheel distribution factors determined below.

PMJV Appeal 9-27-2019
Memo contained an additional
34 pages of JACOBS
Calculations used in original
2015 design, removed from
this package

5.7.4—Interface Shear Transfer—Shear Friction

5.7.4.1—General

Interface shear transfer shall be considered across a given plane at:

- An existing or potential crack;
- An interface between dissimilar materials;
- An interface between two concretes cast at different times; or
- The interface between different elements of the cross-section.

Where the required interface shear reinforcement in girder/slab design exceeds the area required to satisfy flexural shear requirements, additional reinforcement shall be provided to satisfy the interface shear requirements. The additional interface shear reinforcement need only extend into the girder a sufficient depth to develop the design yield stress of the reinforcement rather than extending the full depth of the girder as is required for vertical shear reinforcement.

Reinforcement for interface shear may consist of single bars, multiple leg stirrups, or welded wire reinforcement.

All reinforcement present where interface shear transfer is to be considered shall be fully developed on both sides of the interface by embedment, hooks, mechanical methods such as headed studs or welding to develop the design yield stress.

5.7.4.2—Minimum Area of Interface Shear Reinforcement

Except as provided herein, the cross-sectional area of the interface shear reinforcement, A_{vf} , crossing the interface area, A_{cv} , shall satisfy:

$$A_{vf} \geq \frac{0.05A_{cv}}{f_y} \quad (5.7.4.2-1)$$

where:

- A_{cv} = area of concrete considered to be engaged in interface shear transfer (in.²)
- A_{vf} = area of interface shear reinforcement crossing the shear plane within the area A_{cv} (in.²)
- f_y = yield stress of reinforcement but design value not to exceed 60.0 (ksi)

For a cast-in-place concrete slab on clean concrete girder surfaces free of laitance, the following provisions shall apply:

C5.7.4.1

Shear displacement along an interface plane may be resisted by cohesion, aggregate interlock, and shear-friction developed by the force in the reinforcement crossing the plane of the interface. Roughness of the shear plane causes interface separation in a direction perpendicular to the interface plane. This separation induces tension in the reinforcement balanced by compressive stresses on the interface surfaces.

Any reinforcement crossing the interface is subject to the same strain as the designed interface reinforcement. Insufficient anchorage of any reinforcement crossing the interface could result in localized fracture of the surrounding concrete.

C5.7.4.2

For a girder/slab interface, the minimum area of interface shear reinforcement per foot of girder length is calculated by replacing A_{cv} in Eq. 5.7.4.2-1 with $12b_{vi}$.

Previous editions of these specifications have required a minimum area of reinforcement based on the full interface area; similar to Eq. 5.7.4.2-1, irrespective of the need to mobilize the strength of the full interface

- The minimum interface shear reinforcement, A_{vf} , need not exceed the lesser of the amount determined using Eq. 5.7.4.2-1 and the amount needed to resist $1.33V_{ui}/\phi$ as determined using Eq. 5.7.4.3-3.
- The minimum reinforcement provisions specified herein shall be waived for girder/slab interfaces with surface roughened to an amplitude of 0.25 in. where the factored interface shear stress, v_{ui} of Eq. 5.7.4.5-1, is less than 0.210 ksi, and all vertical (transverse) shear reinforcement required by the provisions of Article 5.7.2.5 is extended across the interface and adequately anchored in the slab.

5.7.4.3—Interface Shear Resistance

The factored interface shear resistance, V_{ri} , shall be taken as:

$$V_{ri} = \phi V_{ni} \quad (5.7.4.3-1)$$

and the design shall satisfy:

$$V_{ri} \geq V_{ui} \quad (5.7.4.3-2)$$

where:

- V_{ni} = nominal interface shear resistance (kip)
- V_{ui} = factored interface shear force due to total load based on the applicable strength and extreme event load combinations in Table 3.4.1-1 (kip)
- ϕ = resistance factor for shear specified in Article 5.5.4.2. For the extreme limit state event ϕ may be taken as 1.0.

The nominal shear resistance of the interface plane shall be taken as:

$$V_{ni} = cA_{cv} + \mu (A_{vf}f_y + P_c) \quad (5.7.4.3-3)$$

The nominal shear resistance, V_{ni} , used in the design shall not exceed either of the following:

$$V_{ni} \leq K_1 f'_c A_{cv}, \quad (5.7.4.3-4)$$

$$V_{ni} \leq K_2 A_{cv} \quad (5.7.4.3-5)$$

area to resist the applied factored interface shear. In 2006, the additional minimum area provisions, applicable only to girder/slab interfaces, were introduced. The intent of these provisions was to eliminate the need for additional interface shear reinforcement due simply to a beam with a wider top flange being utilized in place of a narrower flanged beam.

The additional provision establishes a rational upper bound for the area of interface shear reinforcement required based on the interface shear demand rather than the interface area as stipulated by Eq. 5.7.4.2-1. This treatment is analogous to minimum reinforcement provisions for flexural capacity where a minimum additional overstrength factor of 1.33 is required beyond the factored demand.

With respect to a girder/slab interface, the intent is that the portion of the reinforcement required to resist vertical shear which is extended into the slab also serves as interface shear reinforcement.

C5.7.4.3

Total load shall include all noncomposite and composite loads appropriate to the interface being investigated.

A pure shear friction model assumes interface shear resistance is directly proportional to the net normal clamping force ($A_{vf}f_y + P_c$), through a friction coefficient (μ). Eq. 5.7.4.3-3 is a modified shear-friction model accounting for a contribution, evident in the experimental data, from cohesion and/or aggregate interlock depending on the nature of the interface under consideration given by the first term. For simplicity, the term “cohesion factor” is used throughout the body of this Article to capture the effects of cohesion and/or aggregate interlock such that Eq. 5.7.4.3-3 is analogous to the vertical shear resistance expression of $V_c + V_s$.

in which:

$$A_{cv} = b_{vi} L_{vi} \quad (5.7.4.3-6)$$

where:

- b_{vi} = interface width considered to be engaged in shear transfer (in.)
- L_{vi} = interface length considered to be engaged in shear transfer (in.)
- c = cohesion factor specified in Article 5.7.4.4 (ksi)
- μ = friction factor specified in Article 5.7.4.4

P_c = permanent net compressive force normal to the shear plane; if force is tensile, $P_c = 0.0$ (kip)

f'_c = design concrete compressive strength of the weaker concrete on either side of the interface (ksi)

K_1 = fraction of concrete strength available to resist interface shear, as specified in Article 5.7.4.4.

K_2 = limiting interface shear resistance specified in Article 5.7.4.4 (ksi)

If a member has transverse reinforcement with a specified minimum yield strength greater than 60.0 ksi for flexural shear resistance, interface reinforcement may be provided by extending the transverse reinforcement across the interface zone. In this case, the value of f_y in Eq. 5.7.4.3-3 shall not be taken as greater than 60.0 ksi.

5.7.4.4—Cohesion and Friction Factors

The following values shall be taken for cohesion, c , and friction factor, μ :

Eq. 5.7.4.3-4 limits V_{ni} to prevent crushing or shearing of aggregate along the shear plane.

Eqs. 5.7.4.3-3 and 5.7.4.3-4 are sufficient, with an appropriate value for K_1 , to establish a lower bound for the available experimental data; however, Eq. 5.7.4.3-5 is necessitated by the sparseness of available experimental data beyond the limiting K_2 values provided in Article 5.7.4.4.

The interface shear strength Eqs. 5.7.4.3-3, 5.7.4.3-4, and 5.7.4.3-5 are based on experimental data for normal weight, nonmonolithic concrete strengths ranging from 2.5 ksi to 16.5 ksi; normal weight, monolithic concrete strengths from 3.5 ksi to 18.0 ksi; and lightweight concrete strengths from 2.0 ksi to 6.0 ksi.

A_{vf} used in Eq. 5.7.4.3-3 is the interface shear reinforcement within the interface area A_{cv} . For a girder/slab interface, the area of the interface shear reinforcement per foot of girder length is calculated by replacing A_{cv} in Eq. 5.7.4.3-3 with $12b_{vi}$ and P_c corresponding to the same one foot of girder length.

In consideration of the use of stay-in-place deck panels, or any other interface details, the Designer shall determine the width of interface, b_{vi} , effectively acting to resist interface shear.

The interface reinforcement is assumed to be stressed to its design yield stress, f_y . However, f_y used in determining the interface shear resistance is limited to 60.0 ksi because interface shear resistance computed using higher values have overestimated the interface shear resistance experimentally determined in a limited number of tests of pre-cracked specimens.

It is conservative to neglect P_c if it is compressive, however, if included, the value of P_c shall be computed as the force acting over the area, A_{cv} . If P_c is tensile, additional reinforcement is required to resist the net tensile force as specified in Article 5.7.4.5.

C5.7.4.4

The values presented provide a lower bound of the substantial body of experimental data available in the literature (Loov and Patnaik, 1994; Patnaik, 1999;

- For a cast-in-place concrete slab on clean concrete girder surfaces, free of laitance with surface roughened to an amplitude of 0.25 in.

$$\begin{aligned}c &= 0.28 \text{ ksi} \\ \mu &= 1.0 \\ K_1 &= 0.3 \\ K_2 &= 1.8 \text{ ksi for normal weight concrete} \\ &= 1.3 \text{ ksi for lightweight concrete}\end{aligned}$$

- For normal weight concrete placed monolithically:

$$\begin{aligned}c &= 0.40 \text{ ksi} \\ \mu &= 1.4 \\ K_1 &= 0.25 \\ K_2 &= 1.5 \text{ ksi}\end{aligned}$$

- For lightweight concrete placed monolithically, or placed against a clean concrete surface, free of laitance with surface intentionally roughened to an amplitude of 0.25 in.:

$$\begin{aligned}c &= 0.24 \text{ ksi} \\ \mu &= 1.0 \\ K_1 &= 0.25 \\ K_2 &= 1.0 \text{ ksi}\end{aligned}$$

- For normal weight concrete placed against a clean concrete surface, free of laitance, with surface intentionally roughened to an amplitude of 0.25 in.:

$$\begin{aligned}c &= 0.24 \text{ ksi} \\ \mu &= 1.0 \\ K_1 &= 0.25 \\ K_2 &= 1.5 \text{ ksi}\end{aligned}$$

- For concrete placed against a clean concrete surface, free of laitance, but not intentionally roughened:

$$\begin{aligned}c &= 0.075 \text{ ksi} \\ \mu &= 0.6 \\ K_1 &= 0.2 \\ K_2 &= 0.8 \text{ ksi}\end{aligned}$$

- For concrete anchored to as-rolled structural steel by headed studs or by reinforcing bars where all steel in contact with concrete is clean and free of paint:

$$\begin{aligned}c &= 0.025 \text{ ksi} \\ \mu &= 0.7 \\ K_1 &= 0.2 \\ K_2 &= 0.8 \text{ ksi}\end{aligned}$$

For brackets, corbels, and ledges, the cohesion factor, c , shall be taken as 0.0.

Mattock, 2001; Slapkus and Kahn, 2004). Furthermore, the inherent redundancy of girder/slab bridges distinguishes this system from other structural interfaces.

The values presented apply strictly to monolithic concrete. These values are not applicable for situations where a crack may be anticipated to occur at a service limit state.

The factors presented provide a lower bound of the experimental data available in the literature (Hofbeck, Ibrahim, and Mattock, 1969; Mattock, Li, and Wang, 1976; Mitchell and Kahn, 2001).

Available experimental data demonstrates that only one modification factor is necessary, when coupled with the resistance factors of Article 5.5.4.2, to accommodate lightweight concrete with lightweight fine aggregate and normal weight fine aggregate. This deviates from earlier specifications that distinguished between different types of lightweight concrete.

Due to the absence of existing data, the prescribed cohesion and friction factors for lightweight concrete placed against hardened concrete are accepted as conservative for application to monolithic lightweight concrete.

Tighter constraints have been adopted for roughened interfaces, other than cast-in-place slabs on roughened girders, even though available test data does not indicate more severe restrictions are necessary. This is to account for variability in the geometry, loading and lack of redundancy at other interfaces.

Since the effectiveness of cohesion and aggregate interlock along a vertical crack interface is unreliable the

5.7.4.5—Computation of the Factored Interface Shear Force for Girder/Slab Bridges

Based on consideration of a free body diagram and utilizing the conservative envelope value of V_{u1} , the factored interface shear stress for a concrete girder/slab bridge may be determined as:

$$v_{ui} = \frac{V_{u1}}{b_{vi} d_v} \quad (5.7.4.5-1)$$

where:

d_v = distance between the centroid of the tension steel and the mid-thickness of the slab to compute a factored interface shear stress

The factored interface shear force in kips/ft for a concrete girder/slab bridge may be determined as:

$$V_{ui} = v_{ui} A_{cv} = v_{ui} 12 b_{vi} \quad (5.7.4.5-2)$$

If the net force, P_c , across the interface shear plane is tensile, additional reinforcement, A_{vpc} , shall be provided as:

$$A_{vpc} = \frac{P_c}{\phi f_y} \quad (5.7.4.5-3)$$

cohesion component in Eq. 5.7.4.3-3 is set to 0.0 for brackets, corbels, and ledges.

C5.7.4.5

The following illustrates a free body diagram approach to computation of interface shear in a girder/slab bridge. In reinforced concrete, or prestressed concrete, girder bridges, with a cast-in-place slab, horizontal shear forces develop along the interface between the girders and the slab. The classical strength of materials approach, which is based on elastic behavior of the section, has been used successfully in the past to determine the design interface shear force. As an alternative to the classical elastic strength of materials approach, a reasonable approximation of the factored interface shear force at the strength or extreme event limit state for either elastic or inelastic behavior and cracked or uncracked sections, can be derived with the defined notation and the free body diagram shown in Figure C5.7.4.5-1 as follows:

M_{u2} = maximum factored moment at section 2 (kip-in.)

V_1 = factored vertical shear at section 1 concurrent with M_{u2} (kip)

M_1 = factored moment at section 1 concurrent with M_{u2} (kip-in.)

$\Delta \ell$ = unit length segment of girder (in.)

C_1 = compression force above the shear plane associated with M_1 (kip)

C_{u2} = compression force above the shear plane associated with M_{u2} (kip)

$$M_{u2} = M_1 + V_1 \Delta \ell \quad (C5.7.4.5-1)$$

$$C_{u2} = \frac{M_{u2}}{d_v} \quad (C5.7.4.5-2)$$

$$C_{u2} = \frac{M_1}{d_v} + \frac{V_1 \Delta \ell}{d_v} \quad (C5.7.4.5-3)$$

$$C_1 = \frac{M_1}{d_v} \quad (C5.7.4.5-4)$$

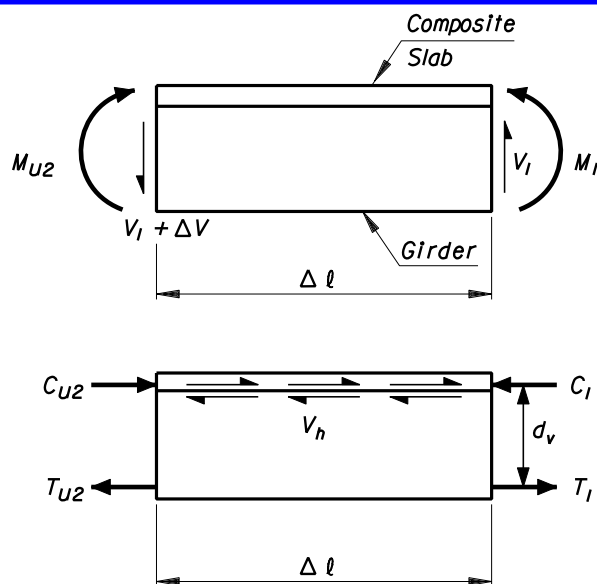


Figure C5.7.4.5-1—Free Body Diagrams

$$V_h = C_{U2} - C_I \quad (\text{C5.7.4.5-5})$$

$$V_h = \frac{V_I \Delta \ell}{d_v} \quad (\text{C5.7.4.5-6})$$

Such that for a unit length segment:

$$V_{hi} = \frac{V_I}{d_v} \quad (\text{C5.7.4.5-7})$$

where:

V_{hi} = factored interface shear force per unit length (kips/length)

The variation of V_I over the length of any girder segment reflects the shear flow embodied in the classical strength of materials approach. For simplicity of design, V_I can be conservatively taken as V_{u1} (since V_{u1} , the maximum factored vertical shear at section 1, is not likely to act concurrently with the factored moment at section 2); and further, the depth, d_v , can be taken as the distance between the centroid of the tension steel and the mid-thickness of the slab to compute a factored interface shear stress.

For design purposes, the computed factored interface shear stress of Eq. 5.7.4.5-1 is converted to a resultant interface shear force computed with Eq. 5.7.4.5-2 acting over an area, A_{cv} , within which the computed area of reinforcement, A_{vf} , shall be located. The resulting area of reinforcement, A_{vf} , then defines the area of interface reinforcement required per foot of girder for direct comparison with vertical shear reinforcement requirements.

Recent research (Markowski et al., 2005; Tadros and Girgis, 2006; Badie and Tadros, 2008; Sullivan et

For beams or girders, the longitudinal center-to-center spacing of nonwelded interface shear connectors

shall not exceed 48.0 in. or the depth of the member, h . For cast-in-place box girders, the longitudinal center-to-center spacing of nonwelded interface shear connectors shall not exceed 24.0 in.

5.7.4.6—Interface Shear in Box Girder Bridges

Adequate shear transfer reinforcement shall be provided at the web/flange interfaces in box girders to transfer flange longitudinal forces at the strength limit state. Consideration shall be given to any construction joints at the interfaces, as well as the amount of reinforcing present in the flange and web for other design purposes.

5.8—DESIGN OF D-REGIONS

5.8.1—General

Refined analysis methods or strut-and-tie method may be used to determine internal force effects in disturbed regions such as those near supports and the points of application of concentrated loads at strength and extreme event limit states.

5.8.2—Strut-and-Tie Method (STM)

5.8.2.1—General

The STM may be used to determine internal force effects near supports and the points of application of concentrated loads at strength and extreme event limit states.

The STM should be considered for the design of deep footings and pile caps or other situations in which the distance between the centers of applied load and the

al., 2011) has demonstrated that increasing interface shear connector spacing from 24.0 to 48.0 in. has resulted in no deficiency in composite action for the same resistance of shear connectors per foot, and girder and deck configurations. These research projects have independently demonstrated no vertical separation between the girder top and the deck under cyclic or ultimate loads. However, the research did not investigate relatively shallow members; hence, the additional limitation related to the member depth is provided.

As the spacing of connector groups increases, the capacities of the concrete and grout in their vicinity become more critical and need to be carefully verified. This applies to all connected elements at the interface. Eqs. 5.7.4.3-2 and 5.7.4.3-3 are intended to ensure that the capacity of the concrete component of the interface is adequate. Methods to enhance that capacity, if needed, include use of high-strength materials and of localized confinement reinforcement.

C5.7.4.6

The factored design force for the interface reinforcement is calculated to account for the interface shear force as well as any localized shear effects due to the prestressing force anchorages at the section.

Historically, vertical planes at the web/flange interface have been checked for segmental bridges. If a horizontal construction joint is present, the interface shear check should also include the horizontal planes at the construction joints. This is a check that enough reinforcing is present. Additional reinforcing need not be added if there is already enough reinforcing present for other purposes, such as global shear and torsion in the cross-section and transverse bending.

C5.8.2.1

Traditional section-by-section design is based on the assumption that the reinforcement required at a particular section depends only on the independent values of the factored section force effects V_u , M_u , and T_u and does not consider the manner in which the loads and reactions are applied which generate these sectional forces. The traditional method further assumes that the



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- (a) Equation (16-8), with $K_1 = 400$ psi, and
 (b) Equation (16-12), with $k = 0.5$, for initially cracked concrete

The test data are compared with the nominal strengths, with $\phi = 1.0$. The specimens had concrete strengths ranging from 3840 psi to 4510 psi.

Test data for push-off specimens with a precracked interface [16-1] and an average concrete strength of 4060 psi are plotted in Fig. 16-9, along with data from tests of composite beams with average concrete strengths of 5710 psi for the webs and 5160 psi for the flanges [16-5]. The nominal strengths computed from Eq. (16-12), with $k = 0.5$ for a precracked interface, and $f'_c = 4000$ psi, fit the data quite well.

EXAMPLE 16-1 Design of the Reinforcement in the Bearing Region of a Precast Beam

Figure 16-10 shows the support region of a precast concrete beam. The factored beam reactions are 62 kips vertical force and a horizontal tension force of 12 kips. The horizontal force arises from restraint of the shrinkage of the precast beam. The cross section of the beam is 12 in. wide by 18 in. deep. Use $f'_c = 4000$ psi, assume normal-density concrete, and use $f_y = 60,000$ psi.

1. **Assume the cracked plane.** The crack plane giving the maximum area, A_c , is a vertical crack. This will tend to overestimate the cohesion component. Assume that the support region of the beam is enclosed by a 6-in. $\times$ 6-in. structural steel angle, as shown in Fig. 16-10, and assume that the crack is at 60° to the horizontal. It intercepts the end of the beam at 10.2 in. above the bottom and has a length of 12 in. We shall take $A_c = 12$ in. $\times$ 12 in. = 144 in.².

2. **Compute the area of steel required.** Resolving the forces onto the inclined plane gives a normal force of 20.6 kips compression and a shear force of 59.7 kips for a 60° plane. Each assumed crack angle will result in a different combination of normal and shear forces. However, it is quick and conservative to assume that the shear force is equal to the vertical reaction of 62 kips and that the normal force is equal to the horizontal reaction $N_u = -12$ kips (negative in tension). In addition, we shall assume that $\alpha_f = 90^\circ$.

From Eq. (16-2),

$$V_n = A_{vf} f_y \mu$$

We want $V_n \geq \phi V_u$, so

$$A_{vf} \geq \frac{V_u}{\phi f_y \mu}$$

where $V_u = 62$ kips, $\mu = 1.4\lambda$ (the crack plane is in monolithically placed concrete), and $\lambda = 1.0$ (normal-weight concrete is used). We thus have

$$A_{vf} = \frac{62 \text{ kips}}{0.75 \times 60 \text{ ksi} \times 1.4} = 0.984 \text{ in.}^2$$

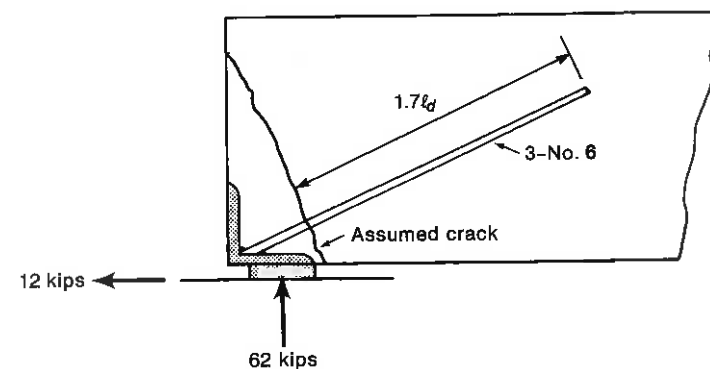


Fig. 16-10
Example 16-1.

We must confirm that the required value of V_n , V_u/ϕ , does not exceed the upper limit given in ACI Code Section 11.6.5. The required value of V_n is

$$V_n = V_u/\phi = 62 \text{ kips}/0.75 = 82.7 \text{ kips}$$

The value for the stress acting on the effective concrete area resisting shear transfer, A_c , is limited in ACI Code Section 11.6.5 to the smallest of

$$0.2f'_c = 0.2 \times 4000 \text{ psi} = 800 \text{ psi}$$

$$480 \text{ psi} + 0.08f'_c = 480 + 0.08 \times 4000 = 800 \text{ psi}$$

or

$$1600 \text{ psi}$$

Thus, the limiting stress is 800 psi, and the upper limit on V_n is

$$V_n \leq (800 \text{ psi})A_c = 800 \text{ psi} \times 144 \text{ in.}^2 = 115 \text{ kips}$$

The required value for V_n does not exceed this value, so we do not need to increase the effective section area resisting the factored shear force.

The tensile force must also be transferred across the crack by reinforcement, as calculated using Eq. (16-4),

$$A_n = \frac{12 \text{ kips}}{0.75 \times 60 \text{ ksi}} = 0.267 \text{ in.}^2$$

Therefore, the total steel across the crack must be $(0.984 + 0.267) \text{ in.}^2 = 1.25 \text{ in.}^2$

Provide three No. 6 bars across the assumed crack, $A_s = 1.32 \text{ in.}^2$. These bars must be anchored on both sides of the crack. This is done by welding them to the bearing angle and by extending them $1.7\ell_d$, as recommended in [16-14].

16-3 COMPOSITE CONCRETE BEAMS

Frequently, precast beams or steel beams have a slab cast on top of them and are designed assuming that the slab and beam act as a monolithic unit to support loads. Such a beam-and-slab combination is referred to as a *composite beam*. This discussion will deal only with composite beams where the beam is precast concrete or other concrete cast at an earlier time than the slab.

Shored or Unshored Construction

When the slab concrete is placed, the precast beam can either be shored or unshored. In typical shored construction, the precast beam is placed and must support its own weight. Shores are then added to support the beam and initially resist the weight of the cast-in-place slab. When the strength of the slab concrete is high enough to resist expected stresses, the shores are removed and the slab dead load is resisted by the composite beam and slab. If the precast beam is not shored when the slab is placed, the beam supports its own weight plus the weight of the slab and the slab forms. ACI Code Section 17.2 allows either construction process and requires that each element be strong enough to support all loads it supports by itself. If the beam is shored, ACI Code Section 17.3 requires that the shores be left in place until the composite section has a strength adequate to support all loads and to limit deflections and cracking.

Tests have shown that the ultimate strength of a composite beam is the same whether the member was shored or unshored during construction. For this reason, ACI Code Section 17.2.4 allows strength computations to be made that consider only the final composite member.

Horizontal Shear

In the beam shown in Fig. 16-11a, there are no horizontal shear stresses transferred from the slab to the beam. They act as two independent members. In Fig. 16-11b, horizontal shear stresses act on the interface, and as a result, the slab and beam act in a composite manner. The ACI Code provisions for horizontal shear are given in ACI Code Section 17.5. Although the mechanism of horizontal shear transfer and that of shear friction are similar, if not identical, there is a considerable difference between the two sets of provisions. The difference results from the fact that Eq. (16-8), ACI Code Section 17.5.2.3, and ACI Code Section 11.7 are all empirical attempts to fit test data. Equation (16-8) is valid for relatively short shear planes with lengths up to several feet, but is believed to give shear strengths that are too high for long shear-transfer regions if the maximum stress is localized. It is also unconservative for low values of $\rho_v f_y$, as used in Eq. (16-3).

The term *horizontal shear stress* is used to describe the shear stresses acting on the interface in Fig. 16-11b. In a normal composite beam, these stresses are horizontal. If the beam were vertical, however, the term "horizontal shear" would still be used to distinguish between this shear and the orientation of shear stresses in a beam. Tests of horizontal shear in composite beams are reported in [16-3], [16-5], [16-6], [16-15], and [16-16]. The tests reported in [16-6] included members with and without shear keys along the interface. The presence of shear keys stiffened the connection at low slips but had no significant effect on its strength.

Computation of Horizontal Shear Stress

From strength of materials, the horizontal shear stresses, v_h , on the contact surface between an uncracked elastic precast beam and a slab can be computed from

$$v_{uh} = \frac{VQ}{I_c b_v} \quad (16-13)$$

where

V = shear force acting on the section in question

Q = first moment of the area of the slab or flange about the centroidal axis of the composite section

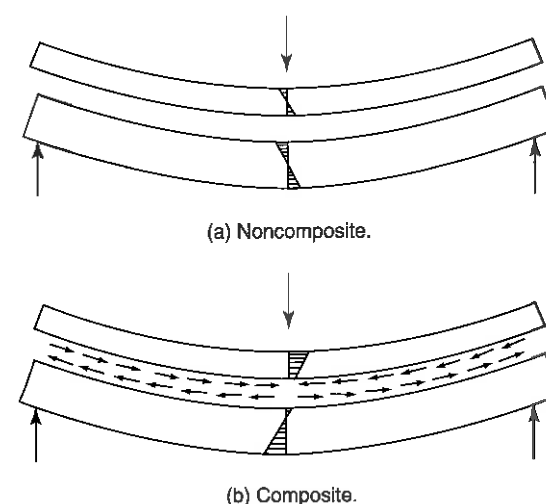


Fig. 16-11
Horizontal shear transfer in a composite beam.

I_c = moment of inertia of the composite section

b_v = width of the interface between the precast beam and the cast-in-place slab

Equation (16-13) applies to uncracked elastic beams and is only an approximation for cracked concrete beams.

The ACI Code gives two ways of calculating the horizontal shear stress.

ACI Code Section 17.5.3 defines the nominal horizontal shear force, V_{nh} , to be transferred as

$$\phi V_{nh} \geq V_u \quad (16-14)$$

(ACI Eq. 17-1)

Setting $\phi V_{nh} = V_u$ and using expression for shear stress from Chapter 6 gives

$$v_{nh} = \frac{V_u / \phi}{b_v d} \quad (16-15a)$$

This is based on the observation that the shear stresses on opposite pairs of sides of an element located at the top of the web are equal in magnitude, as shown in Fig. 6-3a, but are arranged to give couples in opposite directions. For an element taken from directly over the beam web at the interface between the web and flange, the shear stresses on the top and bottom sides of the element are v_{nh} , and the shear stresses on the vertical sides of the element are

$$v_{nv} = \frac{V_u / \phi}{b_v d} \quad (16-15b)$$

where V_u is the factored shear force acting on the cross section of the beam as obtained from a shear-force diagram for the beam. If the shear stresses on the left and right faces of the element form a counter-clockwise couple, those on the bottom and top of the element must form a clockwise couple. For equilibrium, the shear stresses on four sides of an element must be equal in magnitude. Thus,

$$v_{nh} = v_{nv} \quad (16-16)$$

Calculation of Horizontal Shear Stresses from C and T Forces

Alternatively, ACI Code Section 17.5.4 allows horizontal shear to be computed from the change in compressive or tensile force in the slab in segment of any length. Figure 16-12 illustrates this clause. At midspan, the force in the compression zone is C , as shown in Fig. 16-12a. All of this force acts above the interface. At the end of the beam, the force in the flange is zero. Thus, the horizontal shear force to be transferred across the interface between midspan and the support is

$$V_h = C \quad (16-17)$$

A similar derivation could be carried out by considering the force in the reinforcement,

$$V_{uh} = T_u \quad (16-18)$$

where T_u is the tensile force in the reinforcement related to M_u .

ACI Code Section 17.5.4.1 says that when ties are provided to resist the horizontal shear calculated using Eqs. (16-17) or (16-18), the spacing of the ties should approximately

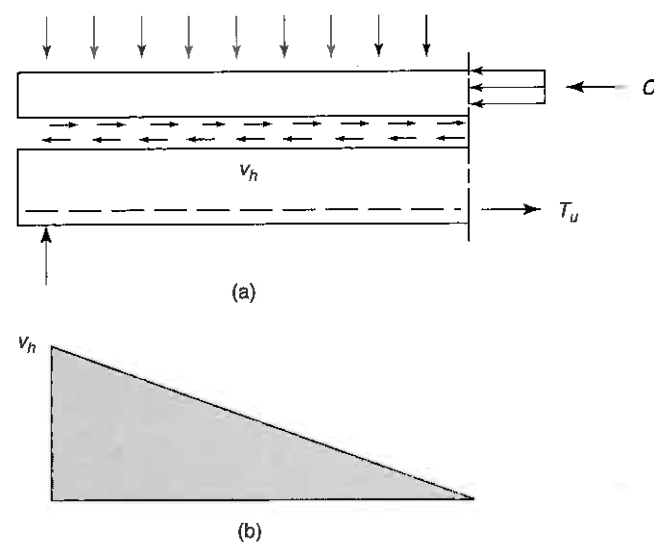


Fig. 16-12
Horizontal shear stresses in a
composite beam.

reflect the distribution of shear forces along the member. This is specified because the slip of the slab relative to the web at the onset of a horizontal shear failure is too small to allow much redistribution of horizontal shear stresses. In [16-5], the measured slip at maximum horizontal shear stress was on the order of 0.02 in., and the slip at failure ranged from 0.08 to 0.3 in. We shall calculate the horizontal shear stresses by dividing the beam into a series of segments and computing the value of C_u or T_u at both ends of each segment. Then,

$$v_{uh} = \frac{T_{u1} - T_{u2}}{b_v \ell_s} \quad (16-19)$$

where T_{u1} and T_{u2} are the larger and smaller tension forces on the two ends of a segment, and ℓ_s is the length of the segment. The tension force can be taken as $T_u = M_u / jd$. If jd is assumed to be constant, T_u varies as the M_u diagram. For a uniformly loaded simple beam, the M_u diagram is a parabola, and the moments at the $\frac{1}{4}$ and $\frac{1}{8}$ points of the span are 0.75 and 0.438 times the maximum moment, respectively. These fractions of the moment diagram can be calculated from the shear-force diagram because the change in moment from one section to another is equal to the area of the shear-force diagram between the two sections.

The two procedures give similar results, as will be seen in Example 16-2. The limits on V_{nh} (V_{uh} / ϕ) from ACI Code Sections 17.5.3.1 to 17.5.3.3 are given in Table 16-1.

In composite beams, the contact surfaces must be clean and free from laitance. The words "intentionally roughened" imply that the surface has been roughened with a "full amplitude" of $\frac{1}{4}$ in., as discussed in connection with shear friction. When the factored shear force, $V_u = \phi V_{nh}$, at the section exceeds $\phi(500b_v d)$ psi, ACI Code Section 17.5.3.4 requires design be based on shear friction, in accordance with ACI Code Section 11.6.4. This limit reflects the range of test data used to derive ACI Code Section 17.5.3.3.

ACI Code Section 17.6 requires that the ties provided for horizontal shear be not less than the minimum stirrups required for shear, given by

$$A_v = \frac{0.75 \sqrt{f'_c} b_w s}{f_{yt}}, \text{ and } \geq \frac{50 b_w s}{f_{yt}} \quad (16-20)$$

(ACI Eq. 11-13)

The tie spacing shall not exceed four times the least dimension of the supported element, which is usually the thickness of the slab, but not more than 24 in. The ties must be fully anchored both in the beam stem and in the slab.

TABLE 16-1 Calculation of V_{nh}

ACI Section	Contact Surfaces	Ties	V_{nh}
17.5.3.1	Intentionally roughened	None	$80b_v d$
17.5.3.2	Not roughened	Minimum ties from ACI Code Section 17.6	$80b_v d$
17.5.3.3	Intentionally roughened	$A_v f_{yt}$	$\left(260 + \frac{0.6 A_v f_{yt}}{b_v s} \right) \lambda b_v d$ but not more than $500b_v d$

Deflections

The beam cross section considered when calculating deflections depends on whether the beam was shored or unshored when the composite slab is placed. If it is shored so that the full dead load of both the precast beam and the slab is carried by the composite section, ACI Code Section 9.5.5.1 allows the designer to consider the loads to be carried by the full composite section when computing deflections. The modulus of elasticity should be based on the strength of the concrete in the compression zone, while the modulus of rupture should be based on the strength of the concrete in the tension zone. For nonprestressed beams constructed with shores, it is not necessary to check deflections if the overall height of the composite section satisfies ACI Code Table 9.5(a).

ACI Code Section 9.5.5.2 covers the calculation of deflections for unshored construction of nonprestressed beams. If the thickness of the precast member satisfies ACI Table 9.5(a), it is not necessary to consider deflections. If the thickness of the composite section satisfies the table, but the thickness of the precast member does not, it is not necessary to compute deflections occurring after the section becomes composite, but it is necessary to compute the instantaneous deflections and that part of the sustained load deflections occurring prior to the beginning of effective composite action. The latter can be assumed to occur when the modulus of elasticity of the slab reaches 70 to 80 percent of its 28-day value, usually about four to seven days after the slab is placed.

ACI Code Section 9.5.5.1 states that if deflections are computed, they should account for the curvatures induced by the differential shrinkage between the slab and the precast beam. Shrinkage of the slab relative to the beam causes the slab to shorten relative to the beam. Because the slab and beam are joined together, this relative shortening causes the beam to deflect downward, adding to the deflections due to loads. Some of the shrinkage of the concrete in the beam will have occurred before the beam is erected in the structure. All of the slab shrinkage occurs after the slab is cast. As the slab shrinks relative to the beam, tensile stresses are induced in the slab and compressive stresses in the beam. These are redistributed to some degree by creep of the concrete in the slab and beam. This effect can be modeled by using an *age-adjusted effective modulus*, E_{caa} , and an *age-adjusted transformed section* in the calculations, as discussed in Section 3-6 and in [16-17] and [16-18].

EXAMPLE 16-2 Design of a Composite Beam

Precast, simply supported beams that span 24 ft and are spaced 10 ft on centers are composite with a slab that supports an unfactored live load of 100 psf, a partition load of 20 psf, and a superimposed dead load of 10 psf. Design the beams and the composite beam and slab. Use $f'_c = 3000$ psi for the slab, 5000 psi for the precast beams, and $f_y = 60,000$ psi. Use load factors from ACI Code Section 9.2.1.

1. Select the trial dimensions. For the end span of the slab, ACI Code Table 9.5(a) gives the minimum thickness of a one-way slab as $h = \ell / 24 = 120 \text{ in.} / 24 = 5 \text{ in.}$ For a simply supported beam, the table gives $h = \ell / 16 = (24 \times 12) / 16 = 18 \text{ in.}$ Deflections of the composite beam may be a problem if the overall depth is less than 18 in. However, for unshored construction, ACI Code



PARSONS

White River Pier 1 Cap

Friday, September 27, 2019

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Tel:



PROJECT SUMMARY

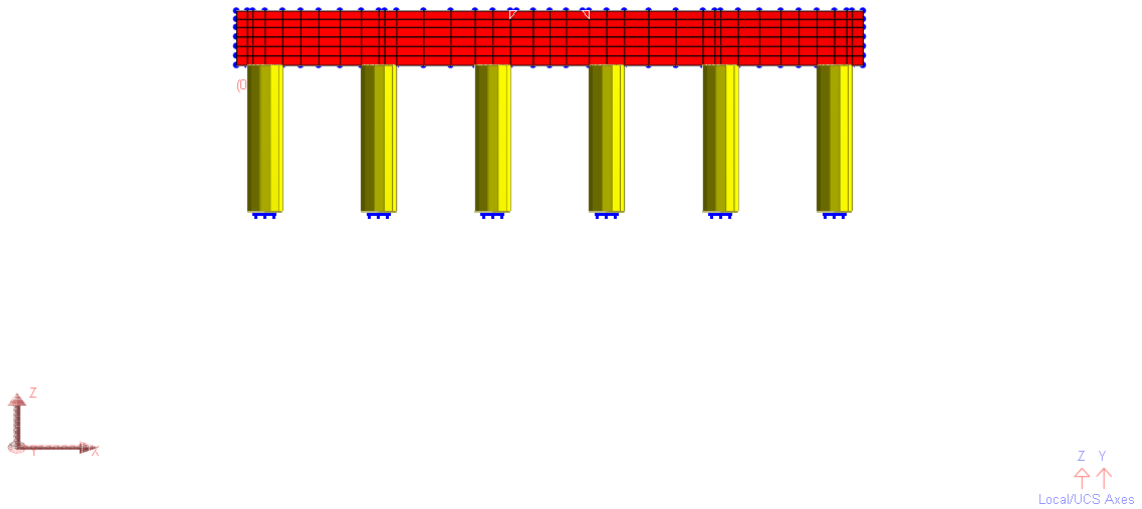
INPUT PROPERTIES		Count	INPUT GEOMETRY		Count	Load Cases		Count
Universal Restraints		NONE	Joints		273	Load Cases		8
Materials		1	Members		6	Combination Cases		2
Sections		1	Plates		218	Construction Stages		NONE
User Coordinate System		NONE	Springs		NONE	Linked Databases		NONE
Spring Curves		NONE	Isolaters		NONE			
Isolater Property		NONE	Mass Elements		NONE			
Creep Definitions		NONE	Slave / Masters		NONE			
			Tendons		NONE			

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- INPUT : Joints	Page 5	- RESULT ENVELOPE :Plate Forces on Center	Page 56
- INPUT : Members	Page 10	@ In-Plane Shear Fxy (kips/ft)	
- INPUT : Plates	Page 11		
- INPUT : Rigid Links	Page 15		
- STRUCTURE GROUP SUMMARY	Page 16		
- Load Cases	Page 16		
- STRUCTURE GROUP SUMMARY	Page 19		

Graphics View 1

Zoom 1.000X



INPUT : Material Properties

Name	Modulus of Elasticity (kips/in ²)	Poisson Ratio	Shear Modulus (kips/in ²)	Unit Weight (kips/in ³)	Thermal Expansion (1/ °F *10 ⁻⁶)	Assigned
Fc_3.5	3,814.69	0.1702	1,629.98	0.0001	6.000000	Yes

INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
1	0.0000	0.0000	0.0000	all free	all free	Global	Yes
2	2.0000	0.0000	0.0000	all free	all free	Global	Yes
3	3.0000	0.0000	0.0000	all free	all free	Global	Yes
4	5.2500	0.0000	0.0000	all free	all free	Global	Yes
5	8.5000	0.0000	0.0000	all free	all free	Global	Yes
6	11.8333	0.0000	0.0000	all free	all free	Global	Yes
7	15.1667	0.0000	0.0000	all free	all free	Global	Yes
8	19.0833	0.0000	0.0000	all free	all free	Global	Yes
9	23.0000	0.0000	0.0000	all free	all free	Global	Yes
10	26.2500	0.0000	0.0000	all free	all free	Global	Yes
11	27.3333	0.0000	0.0000	all free	all free	Global	Yes
12	29.5000	0.0000	0.0000	all free	all free	Global	Yes
13	34.5000	0.0000	0.0000	all free	all free	Global	Yes
14	39.5000	0.0000	0.0000	all free	all free	Global	Yes
15	44.0000	0.0000	0.0000	all free	all free	Global	Yes
16	47.2500	0.0000	0.0000	all free	all free	Global	Yes
17	50.5000	0.0000	0.0000	all free	all free	Global	Yes
18	54.7083	0.0000	0.0000	all free	all free	Global	Yes
19	57.7500	0.0000	0.0000	all free	all free	Global	Yes
20	60.7917	0.0000	0.0000	all free	all free	Global	Yes
21	65.0000	0.0000	0.0000	all free	all free	Global	Yes
22	68.2500	0.0000	0.0000	all free	all free	Global	Yes
23	71.5000	0.0000	0.0000	all free	all free	Global	Yes
24	76.0000	0.0000	0.0000	all free	all free	Global	Yes
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26	86.0000	0.0000	0.0000	all free	all free	Global	Yes
27	88.1667	0.0000	0.0000	all free	all free	Global	Yes
28	89.2500	0.0000	0.0000	all free	all free	Global	Yes
29	92.5000	0.0000	0.0000	all free	all free	Global	Yes
30	96.4167	0.0000	0.0000	all free	all free	Global	Yes
31	100.3333	0.0000	0.0000	all free	all free	Global	Yes
32	103.6667	0.0000	0.0000	all free	all free	Global	Yes
33	107.0000	0.0000	0.0000	all free	all free	Global	Yes
34	110.2500	0.0000	0.0000	all free	all free	Global	Yes
35	112.5000	0.0000	0.0000	all free	all free	Global	Yes
36	113.5000	0.0000	0.0000	all free	all free	Global	Yes
37	115.5000	0.0000	0.0000	all free	all free	Global	Yes
38	0.0000	0.0000	1.7500	all free	all free	Global	Yes
39	2.0000	0.0000	1.7500	all free	all free	Global	Yes
40	3.0000	0.0000	1.7500	all free	all free	Global	Yes
41	5.2500	0.0000	1.7500	all free	all free	Global	Yes

INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
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43	11.8333	0.0000	1.7500	all free	all free	Global	Yes
44	15.1667	0.0000	1.7500	all free	all free	Global	Yes
45	19.0833	0.0000	1.7500	all free	all free	Global	Yes
46	23.0000	0.0000	1.7500	all free	all free	Global	Yes
47	26.2500	0.0000	1.7500	all free	all free	Global	Yes
48	27.3333	0.0000	1.7500	all free	all free	Global	Yes
49	29.5000	0.0000	1.7500	all free	all free	Global	Yes
50	34.5000	0.0000	1.7500	all free	all free	Global	Yes
51	39.5000	0.0000	1.7500	all free	all free	Global	Yes
52	44.0000	0.0000	1.7500	all free	all free	Global	Yes
53	47.2500	0.0000	1.7500	all free	all free	Global	Yes
54	50.5000	0.0000	1.7500	all free	all free	Global	Yes
55	54.7083	0.0000	1.7500	all free	all free	Global	Yes
56	57.7500	0.0000	1.7500	all free	all free	Global	Yes
57	60.7917	0.0000	1.7500	all free	all free	Global	Yes
58	65.0000	0.0000	1.7500	all free	all free	Global	Yes
59	68.2500	0.0000	1.7500	all free	all free	Global	Yes
60	71.5000	0.0000	1.7500	all free	all free	Global	Yes
61	76.0000	0.0000	1.7500	all free	all free	Global	Yes
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64	88.1667	0.0000	1.7500	all free	all free	Global	Yes
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66	92.5000	0.0000	1.7500	all free	all free	Global	Yes
67	96.4167	0.0000	1.7500	all free	all free	Global	Yes
68	100.3333	0.0000	1.7500	all free	all free	Global	Yes
69	103.6667	0.0000	1.7500	all free	all free	Global	Yes
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72	112.5000	0.0000	1.7500	all free	all free	Global	Yes
73	113.5000	0.0000	1.7500	all free	all free	Global	Yes
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75	0.0000	0.0000	3.5000	all free	all free	Global	Yes
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78	5.2500	0.0000	3.5000	all free	all free	Global	Yes
79	8.5000	0.0000	3.5000	all free	all free	Global	Yes
80	11.8333	0.0000	3.5000	all free	all free	Global	Yes
81	15.1667	0.0000	3.5000	all free	all free	Global	Yes
82	19.0833	0.0000	3.5000	all free	all free	Global	Yes
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87	34.5000	0.0000	3.5000	all free	all free	Global	Yes
88	39.5000	0.0000	3.5000	all free	all free	Global	Yes
89	44.0000	0.0000	3.5000	all free	all free	Global	Yes
90	47.2500	0.0000	3.5000	all free	all free	Global	Yes



INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
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92	54.7083	0.0000	3.5000	all free	all free	Global	Yes
93	57.7500	0.0000	3.5000	all free	all free	Global	Yes
94	60.7917	0.0000	3.5000	all free	all free	Global	Yes
95	65.0000	0.0000	3.5000	all free	all free	Global	Yes
96	68.2500	0.0000	3.5000	all free	all free	Global	Yes
97	71.5000	0.0000	3.5000	all free	all free	Global	Yes
98	76.0000	0.0000	3.5000	all free	all free	Global	Yes
99	81.0000	0.0000	3.5000	all free	all free	Global	Yes
100	86.0000	0.0000	3.5000	all free	all free	Global	Yes
101	88.1667	0.0000	3.5000	all free	all free	Global	Yes
102	89.2500	0.0000	3.5000	all free	all free	Global	Yes
103	92.5000	0.0000	3.5000	all free	all free	Global	Yes
104	96.4167	0.0000	3.5000	all free	all free	Global	Yes
105	100.3333	0.0000	3.5000	all free	all free	Global	Yes
106	103.6667	0.0000	3.5000	all free	all free	Global	Yes
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108	110.2500	0.0000	3.5000	all free	all free	Global	Yes
109	112.5000	0.0000	3.5000	all free	all free	Global	Yes
110	113.5000	0.0000	3.5000	all free	all free	Global	Yes
111	115.5000	0.0000	3.5000	all free	all free	Global	Yes
112	0.0000	0.0000	5.2500	all free	all free	Global	Yes
113	2.0000	0.0000	5.2500	all free	all free	Global	Yes
114	3.0000	0.0000	5.2500	all free	all free	Global	Yes
115	5.2500	0.0000	5.2500	all free	all free	Global	Yes
116	8.5000	0.0000	5.2500	all free	all free	Global	Yes
117	11.8333	0.0000	5.2500	all free	all free	Global	Yes
118	15.1667	0.0000	5.2500	all free	all free	Global	Yes
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128	50.5000	0.0000	5.2500	all free	all free	Global	Yes
129	54.7083	0.0000	5.2500	all free	all free	Global	Yes
130	57.7500	0.0000	5.2500	all free	all free	Global	Yes
131	60.7917	0.0000	5.2500	all free	all free	Global	Yes
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136	81.0000	0.0000	5.2500	all free	all free	Global	Yes
137	86.0000	0.0000	5.2500	all free	all free	Global	Yes
138	88.1667	0.0000	5.2500	all free	all free	Global	Yes
139	89.2500	0.0000	5.2500	all free	all free	Global	Yes

INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
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143	103.6667	0.0000	5.2500	all free	all free	Global	Yes
144	107.0000	0.0000	5.2500	all free	all free	Global	Yes
145	110.2500	0.0000	5.2500	all free	all free	Global	Yes
146	112.5000	0.0000	5.2500	all free	all free	Global	Yes
147	113.5000	0.0000	5.2500	all free	all free	Global	Yes
148	115.5000	0.0000	5.2500	all free	all free	Global	Yes
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150	2.0000	0.0000	7.0000	all free	all free	Global	Yes
151	3.0000	0.0000	7.0000	all free	all free	Global	Yes
152	5.2500	0.0000	7.0000	all free	all free	Global	Yes
153	8.5000	0.0000	7.0000	all free	all free	Global	Yes
154	11.8333	0.0000	7.0000	all free	all free	Global	Yes
155	15.1667	0.0000	7.0000	all free	all free	Global	Yes
156	19.0833	0.0000	7.0000	all free	all free	Global	Yes
157	23.0000	0.0000	7.0000	all free	all free	Global	Yes
158	26.2500	0.0000	7.0000	all free	all free	Global	Yes
159	27.3333	0.0000	7.0000	all free	all free	Global	Yes
160	29.5000	0.0000	7.0000	all free	all free	Global	Yes
161	34.5000	0.0000	7.0000	all free	all free	Global	Yes
162	39.5000	0.0000	7.0000	all free	all free	Global	Yes
163	44.0000	0.0000	7.0000	all free	all free	Global	Yes
164	47.2500	0.0000	7.0000	all free	all free	Global	Yes
165	50.5000	0.0000	7.0000	all free	all free	Global	Yes
166	54.7083	0.0000	7.0000	all free	all free	Global	Yes
167	57.7500	0.0000	7.0000	all free	all free	Global	Yes
168	60.7917	0.0000	7.0000	all free	all free	Global	Yes
169	65.0000	0.0000	7.0000	all free	all free	Global	Yes
170	68.2500	0.0000	7.0000	all free	all free	Global	Yes
171	71.5000	0.0000	7.0000	all free	all free	Global	Yes
172	76.0000	0.0000	7.0000	all free	all free	Global	Yes
173	81.0000	0.0000	7.0000	all free	all free	Global	Yes
174	86.0000	0.0000	7.0000	all free	all free	Global	Yes
175	88.1667	0.0000	7.0000	all free	all free	Global	Yes
176	89.2500	0.0000	7.0000	all free	all free	Global	Yes
177	92.5000	0.0000	7.0000	all free	all free	Global	Yes
178	96.4167	0.0000	7.0000	all free	all free	Global	Yes
179	100.3333	0.0000	7.0000	all free	all free	Global	Yes
180	103.6667	0.0000	7.0000	all free	all free	Global	Yes
181	107.0000	0.0000	7.0000	all free	all free	Global	Yes
182	110.2500	0.0000	7.0000	all free	all free	Global	Yes
183	112.5000	0.0000	7.0000	all free	all free	Global	Yes
184	113.5000	0.0000	7.0000	all free	all free	Global	Yes
185	115.5000	0.0000	7.0000	all free	all free	Global	Yes
186	0.0000	0.0000	8.5000	all free	all free	Global	Yes
187	2.0000	0.0000	8.5000	all free	all free	Global	Yes
188	3.0000	0.0000	8.5000	all free	all free	Global	Yes



INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
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191	11.8333	0.0000	8.5000	all free	all free	Global	Yes
192	15.1667	0.0000	8.5000	all free	all free	Global	Yes
193	19.0833	0.0000	8.5000	all free	all free	Global	Yes
194	23.0000	0.0000	8.5000	all free	all free	Global	Yes
195	26.2500	0.0000	8.5000	all free	all free	Global	Yes
196	27.3333	0.0000	8.5000	all free	all free	Global	Yes
197	29.5000	0.0000	8.5000	all free	all free	Global	Yes
198	34.5000	0.0000	8.5000	all free	all free	Global	Yes
199	39.5000	0.0000	8.5000	all free	all free	Global	Yes
200	44.0000	0.0000	8.5000	all free	all free	Global	Yes
201	47.2500	0.0000	8.5000	all free	all free	Global	Yes
202	50.5000	0.0000	8.5000	all free	all free	Global	Yes
203	54.7083	0.0000	8.5000	all free	all free	Global	Yes
204	57.7500	0.0000	8.5000	all free	all free	Global	Yes
205	60.7917	0.0000	8.5000	all free	all free	Global	Yes
206	65.0000	0.0000	8.5000	all free	all free	Global	Yes
207	68.2500	0.0000	8.5000	all free	all free	Global	Yes
208	71.5000	0.0000	8.5000	all free	all free	Global	Yes
209	76.0000	0.0000	8.5000	all free	all free	Global	Yes
210	81.0000	0.0000	8.5000	all free	all free	Global	Yes
211	86.0000	0.0000	8.5000	all free	all free	Global	Yes
212	88.1667	0.0000	8.5000	all free	all free	Global	Yes
213	89.2500	0.0000	8.5000	all free	all free	Global	Yes
214	92.5000	0.0000	8.5000	all free	all free	Global	Yes
215	96.4167	0.0000	8.5000	all free	all free	Global	Yes
216	100.3333	0.0000	8.5000	all free	all free	Global	Yes
217	103.6667	0.0000	8.5000	all free	all free	Global	Yes
218	107.0000	0.0000	8.5000	all free	all free	Global	Yes
219	110.2500	0.0000	8.5000	all free	all free	Global	Yes
220	112.5000	0.0000	8.5000	all free	all free	Global	Yes
221	113.5000	0.0000	8.5000	all free	all free	Global	Yes
222	115.5000	0.0000	8.5000	all free	all free	Global	Yes
223	0.0000	0.0000	10.0000	all free	all free	Global	Yes
224	2.0000	0.0000	10.0000	all free	all free	Global	Yes
225	3.0000	0.0000	10.0000	all free	all free	Global	Yes
226	5.2500	0.0000	10.0000	all free	all free	Global	Yes
227	8.5000	0.0000	10.0000	all free	all free	Global	Yes
228	11.8333	0.0000	10.0000	all free	all free	Global	Yes
229	15.1667	0.0000	10.0000	all free	all free	Global	Yes
230	19.0833	0.0000	10.0000	all free	all free	Global	Yes
231	23.0000	0.0000	10.0000	all free	all free	Global	Yes
232	26.2500	0.0000	10.0000	all free	all free	Global	Yes
233	27.3333	0.0000	10.0000	all free	all free	Global	Yes
234	29.5000	0.0000	10.0000	all free	all free	Global	Yes
235	34.5000	0.0000	10.0000	all free	all free	Global	Yes
236	39.5000	0.0000	10.0000	all free	all free	Global	Yes
237	44.0000	0.0000	10.0000	all free	all free	Global	Yes

INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
238	47.2500	0.0000	10.0000	all free	all free	Global	Yes
239	50.5000	0.0000	10.0000	all free	all free	Global	Yes
240	51.6667	0.0000	10.0000	all free	all free	Global	Yes
241	54.7083	0.0000	10.0000	all free	all free	Global	Yes
242	57.7500	0.0000	10.0000	all free	all free	Global	Yes
243	60.7917	0.0000	10.0000	all free	all free	Global	Yes
244	63.8333	0.0000	10.0000	all free	all free	Global	Yes
245	65.0000	0.0000	10.0000	all free	all free	Global	Yes
246	68.2500	0.0000	10.0000	all free	all free	Global	Yes
247	71.5000	0.0000	10.0000	all free	all free	Global	Yes
248	76.0000	0.0000	10.0000	all free	all free	Global	Yes
249	81.0000	0.0000	10.0000	all free	all free	Global	Yes
250	86.0000	0.0000	10.0000	all free	all free	Global	Yes
251	88.1667	0.0000	10.0000	all free	all free	Global	Yes
252	89.2500	0.0000	10.0000	all free	all free	Global	Yes
253	92.5000	0.0000	10.0000	all free	all free	Global	Yes
254	96.4167	0.0000	10.0000	all free	all free	Global	Yes
255	100.3333	0.0000	10.0000	all free	all free	Global	Yes
256	103.6667	0.0000	10.0000	all free	all free	Global	Yes
257	107.0000	0.0000	10.0000	all free	all free	Global	Yes
258	110.2500	0.0000	10.0000	all free	all free	Global	Yes
259	112.5000	0.0000	10.0000	all free	all free	Global	Yes
260	113.5000	0.0000	10.0000	all free	all free	Global	Yes
261	115.5000	0.0000	10.0000	all free	all free	Global	Yes
304	5.2500	0.0000	0.0000	all free	all free	Global	Yes
310	26.2500	0.0000	0.0000	all free	all free	Global	Yes
316	47.2500	0.0000	0.0000	all free	all free	Global	Yes
322	68.2500	0.0000	0.0000	all free	all free	Global	Yes
328	89.2500	0.0000	0.0000	all free	all free	Global	Yes
334	110.2500	0.0000	0.0000	all free	all free	Global	Yes
404	5.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
410	26.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
416	47.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
422	68.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
428	89.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
434	110.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes

INPUT : Members

ID	I-Joint	J-Joint	Span	Type	Section at Start	Section at End	Material	Prestress Force (kips)	Length (ft)	Rigid Zone from	Rigid Zone from	Orientation Angle	Casting (day)	Structure Group
1	304	404	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
2	310	410	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
3	316	416	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
4	322	422	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
5	328	428	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
6	334	434	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)

INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Casting (day)	Structure Group
1	Classic	Classic	1	2	39	38	Fc_3.5	12.0000	3.5	0	(none)
2	Classic	Classic	2	3	40	39	Fc_3.5	12.0000	1.75	0	(none)
3	Classic	Classic	3	4	41	40	Fc_3.5	12.0000	3.9375	0	(none)
4	Classic	Classic	4	5	42	41	Fc_3.5	12.0000	5.6875	0	(none)
5	Classic	Classic	5	6	43	42	Fc_3.5	12.0000	5.8333	0	(none)
6	Classic	Classic	6	7	44	43	Fc_3.5	12.0000	5.8333	0	(none)
7	Classic	Classic	7	8	45	44	Fc_3.5	12.0000	6.8542	0	(none)
8	Classic	Classic	8	9	46	45	Fc_3.5	12.0000	6.8542	0	(none)
9	Classic	Classic	9	10	47	46	Fc_3.5	12.0000	5.6875	0	(none)
10	Classic	Classic	10	11	48	47	Fc_3.5	12.0000	1.8958	0	(none)
11	Classic	Classic	11	12	49	48	Fc_3.5	12.0000	3.7917	0	(none)
12	Classic	Classic	12	13	50	49	Fc_3.5	12.0000	8.75	0	(none)
13	Classic	Classic	13	14	51	50	Fc_3.5	12.0000	8.75	0	(none)
14	Classic	Classic	14	15	52	51	Fc_3.5	12.0000	7.875	0	(none)
15	Classic	Classic	15	16	53	52	Fc_3.5	12.0000	5.6875	0	(none)
16	Classic	Classic	16	17	54	53	Fc_3.5	12.0000	5.6875	0	(none)
17	Classic	Classic	17	18	55	54	Fc_3.5	12.0000	7.3646	0	(none)
18	Classic	Classic	18	19	56	55	Fc_3.5	12.0000	5.3229	0	(none)
19	Classic	Classic	19	20	57	56	Fc_3.5	12.0000	5.3229	0	(none)
20	Classic	Classic	20	21	58	57	Fc_3.5	12.0000	7.3646	0	(none)
21	Classic	Classic	21	22	59	58	Fc_3.5	12.0000	5.6875	0	(none)
22	Classic	Classic	22	23	60	59	Fc_3.5	12.0000	5.6875	0	(none)
23	Classic	Classic	23	24	61	60	Fc_3.5	12.0000	7.875	0	(none)
24	Classic	Classic	24	25	62	61	Fc_3.5	12.0000	8.75	0	(none)
25	Classic	Classic	25	26	63	62	Fc_3.5	12.0000	8.75	0	(none)
26	Classic	Classic	26	27	64	63	Fc_3.5	12.0000	3.7917	0	(none)
27	Classic	Classic	27	28	65	64	Fc_3.5	12.0000	1.8958	0	(none)
28	Classic	Classic	28	29	66	65	Fc_3.5	12.0000	5.6875	0	(none)
29	Classic	Classic	29	30	67	66	Fc_3.5	12.0000	6.8542	0	(none)
30	Classic	Classic	30	31	68	67	Fc_3.5	12.0000	6.8542	0	(none)
31	Classic	Classic	31	32	69	68	Fc_3.5	12.0000	5.8333	0	(none)
32	Classic	Classic	32	33	70	69	Fc_3.5	12.0000	5.8333	0	(none)
33	Classic	Classic	33	34	71	70	Fc_3.5	12.0000	5.6875	0	(none)
34	Classic	Classic	34	35	72	71	Fc_3.5	12.0000	3.9375	0	(none)
35	Classic	Classic	35	36	73	72	Fc_3.5	12.0000	1.75	0	(none)
36	Classic	Classic	36	37	74	73	Fc_3.5	12.0000	3.5	0	(none)
37	Classic	Classic	38	39	76	75	Fc_3.5	12.0000	3.5	0	PLATES@PLAN
38	Classic	Classic	39	40	77	76	Fc_3.5	12.0000	1.75	0	PLATES@PLAN
39	Classic	Classic	40	41	78	77	Fc_3.5	12.0000	3.9375	0	PLATES@PLAN
40	Classic	Classic	41	42	79	78	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
41	Classic	Classic	42	43	80	79	Fc_3.5	12.0000	5.8333	0	PLATES@PLAN
42	Classic	Classic	43	44	81	80	Fc_3.5	12.0000	5.8333	0	PLATES@PLAN
43	Classic	Classic	44	45	82	81	Fc_3.5	12.0000	6.8542	0	PLATES@PLAN
44	Classic	Classic	45	46	83	82	Fc_3.5	12.0000	6.8542	0	PLATES@PLAN
45	Classic	Classic	46	47	84	83	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
46	Classic	Classic	47	48	85	84	Fc_3.5	12.0000	1.8958	0	PLATES@PLAN
47	Classic	Classic	48	49	86	85	Fc_3.5	12.0000	3.7917	0	PLATES@PLAN

INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Casting (day)	Structure Group
48	Classic	Classic	49	50	87	86	Fc_3.5	12.0000	8.75	0	PLATES@PLAN
49	Classic	Classic	50	51	88	87	Fc_3.5	12.0000	8.75	0	PLATES@PLAN
50	Classic	Classic	51	52	89	88	Fc_3.5	12.0000	7.875	0	PLATES@PLAN
51	Classic	Classic	52	53	90	89	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
52	Classic	Classic	53	54	91	90	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
53	Classic	Classic	54	55	92	91	Fc_3.5	12.0000	7.3646	0	PLATES@PLAN
54	Classic	Classic	55	56	93	92	Fc_3.5	12.0000	5.3229	0	PLATES@PLAN
55	Classic	Classic	56	57	94	93	Fc_3.5	12.0000	5.3229	0	PLATES@PLAN
56	Classic	Classic	57	58	95	94	Fc_3.5	12.0000	7.3646	0	PLATES@PLAN
57	Classic	Classic	58	59	96	95	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
58	Classic	Classic	59	60	97	96	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
59	Classic	Classic	60	61	98	97	Fc_3.5	12.0000	7.875	0	PLATES@PLAN
60	Classic	Classic	61	62	99	98	Fc_3.5	12.0000	8.75	0	PLATES@PLAN
61	Classic	Classic	62	63	100	99	Fc_3.5	12.0000	8.75	0	PLATES@PLAN
62	Classic	Classic	63	64	101	100	Fc_3.5	12.0000	3.7917	0	PLATES@PLAN
63	Classic	Classic	64	65	102	101	Fc_3.5	12.0000	1.8958	0	PLATES@PLAN
64	Classic	Classic	65	66	103	102	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
65	Classic	Classic	66	67	104	103	Fc_3.5	12.0000	6.8542	0	PLATES@PLAN
66	Classic	Classic	67	68	105	104	Fc_3.5	12.0000	6.8542	0	PLATES@PLAN
67	Classic	Classic	68	69	106	105	Fc_3.5	12.0000	5.8333	0	PLATES@PLAN
68	Classic	Classic	69	70	107	106	Fc_3.5	12.0000	5.8333	0	PLATES@PLAN
69	Classic	Classic	70	71	108	107	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
70	Classic	Classic	71	72	109	108	Fc_3.5	12.0000	3.9375	0	PLATES@PLAN
71	Classic	Classic	72	73	110	109	Fc_3.5	12.0000	1.75	0	PLATES@PLAN
72	Classic	Classic	73	74	111	110	Fc_3.5	12.0000	3.5	0	PLATES@PLAN
73	Classic	Classic	75	76	113	112	Fc_3.5	12.0000	3.5	0	(none)
74	Classic	Classic	76	77	114	113	Fc_3.5	12.0000	1.75	0	(none)
75	Classic	Classic	77	78	115	114	Fc_3.5	12.0000	3.9375	0	(none)
76	Classic	Classic	78	79	116	115	Fc_3.5	12.0000	5.6875	0	(none)
77	Classic	Classic	79	80	117	116	Fc_3.5	12.0000	5.8333	0	(none)
78	Classic	Classic	80	81	118	117	Fc_3.5	12.0000	5.8333	0	(none)
79	Classic	Classic	81	82	119	118	Fc_3.5	12.0000	6.8542	0	(none)
80	Classic	Classic	82	83	120	119	Fc_3.5	12.0000	6.8542	0	(none)
81	Classic	Classic	83	84	121	120	Fc_3.5	12.0000	5.6875	0	(none)
82	Classic	Classic	84	85	122	121	Fc_3.5	12.0000	1.8958	0	(none)
83	Classic	Classic	85	86	123	122	Fc_3.5	12.0000	3.7917	0	(none)
84	Classic	Classic	86	87	124	123	Fc_3.5	12.0000	8.75	0	(none)
85	Classic	Classic	87	88	125	124	Fc_3.5	12.0000	8.75	0	(none)
86	Classic	Classic	88	89	126	125	Fc_3.5	12.0000	7.875	0	(none)
87	Classic	Classic	89	90	127	126	Fc_3.5	12.0000	5.6875	0	(none)
88	Classic	Classic	90	91	128	127	Fc_3.5	12.0000	5.6875	0	(none)
89	Classic	Classic	91	92	129	128	Fc_3.5	12.0000	7.3646	0	(none)
90	Classic	Classic	92	93	130	129	Fc_3.5	12.0000	5.3229	0	(none)
91	Classic	Classic	93	94	131	130	Fc_3.5	12.0000	5.3229	0	(none)
92	Classic	Classic	94	95	132	131	Fc_3.5	12.0000	7.3646	0	(none)
93	Classic	Classic	95	96	133	132	Fc_3.5	12.0000	5.6875	0	(none)
94	Classic	Classic	96	97	134	133	Fc_3.5	12.0000	5.6875	0	(none)
95	Classic	Classic	97	98	135	134	Fc_3.5	12.0000	7.875	0	(none)
96	Classic	Classic	98	99	136	135	Fc_3.5	12.0000	8.75	0	(none)

INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Castin g (day)	Structure Group
97	Classic	Classic	99	100	137	136	Fc_3.5	12.0000	8.75	0	(none)
98	Classic	Classic	100	101	138	137	Fc_3.5	12.0000	3.7917	0	(none)
99	Classic	Classic	101	102	139	138	Fc_3.5	12.0000	1.8958	0	(none)
100	Classic	Classic	102	103	140	139	Fc_3.5	12.0000	5.6875	0	(none)
101	Classic	Classic	103	104	141	140	Fc_3.5	12.0000	6.8542	0	(none)
102	Classic	Classic	104	105	142	141	Fc_3.5	12.0000	6.8542	0	(none)
103	Classic	Classic	105	106	143	142	Fc_3.5	12.0000	5.8333	0	(none)
104	Classic	Classic	106	107	144	143	Fc_3.5	12.0000	5.8333	0	(none)
105	Classic	Classic	107	108	145	144	Fc_3.5	12.0000	5.6875	0	(none)
106	Classic	Classic	108	109	146	145	Fc_3.5	12.0000	3.9375	0	(none)
107	Classic	Classic	109	110	147	146	Fc_3.5	12.0000	1.75	0	(none)
108	Classic	Classic	110	111	148	147	Fc_3.5	12.0000	3.5	0	(none)
109	Classic	Classic	112	113	150	149	Fc_3.5	12.0000	3.5	0	(none)
110	Classic	Classic	113	114	151	150	Fc_3.5	12.0000	1.75	0	(none)
111	Classic	Classic	114	115	152	151	Fc_3.5	12.0000	3.9375	0	(none)
112	Classic	Classic	115	116	153	152	Fc_3.5	12.0000	5.6875	0	(none)
113	Classic	Classic	116	117	154	153	Fc_3.5	12.0000	5.8333	0	(none)
114	Classic	Classic	117	118	155	154	Fc_3.5	12.0000	5.8333	0	(none)
115	Classic	Classic	118	119	156	155	Fc_3.5	12.0000	6.8542	0	(none)
116	Classic	Classic	119	120	157	156	Fc_3.5	12.0000	6.8542	0	(none)
117	Classic	Classic	120	121	158	157	Fc_3.5	12.0000	5.6875	0	(none)
118	Classic	Classic	121	122	159	158	Fc_3.5	12.0000	1.8958	0	(none)
119	Classic	Classic	122	123	160	159	Fc_3.5	12.0000	3.7917	0	(none)
120	Classic	Classic	123	124	161	160	Fc_3.5	12.0000	8.75	0	(none)
121	Classic	Classic	124	125	162	161	Fc_3.5	12.0000	8.75	0	(none)
122	Classic	Classic	125	126	163	162	Fc_3.5	12.0000	7.875	0	(none)
123	Classic	Classic	126	127	164	163	Fc_3.5	12.0000	5.6875	0	(none)
124	Classic	Classic	127	128	165	164	Fc_3.5	12.0000	5.6875	0	(none)
125	Classic	Classic	128	129	166	165	Fc_3.5	12.0000	7.3646	0	(none)
126	Classic	Classic	129	130	167	166	Fc_3.5	12.0000	5.3229	0	(none)
127	Classic	Classic	130	131	168	167	Fc_3.5	12.0000	5.3229	0	(none)
128	Classic	Classic	131	132	169	168	Fc_3.5	12.0000	7.3646	0	(none)
129	Classic	Classic	132	133	170	169	Fc_3.5	12.0000	5.6875	0	(none)
130	Classic	Classic	133	134	171	170	Fc_3.5	12.0000	5.6875	0	(none)
131	Classic	Classic	134	135	172	171	Fc_3.5	12.0000	7.875	0	(none)
132	Classic	Classic	135	136	173	172	Fc_3.5	12.0000	8.75	0	(none)
133	Classic	Classic	136	137	174	173	Fc_3.5	12.0000	8.75	0	(none)
134	Classic	Classic	137	138	175	174	Fc_3.5	12.0000	3.7917	0	(none)
135	Classic	Classic	138	139	176	175	Fc_3.5	12.0000	1.8958	0	(none)
136	Classic	Classic	139	140	177	176	Fc_3.5	12.0000	5.6875	0	(none)
137	Classic	Classic	140	141	178	177	Fc_3.5	12.0000	6.8542	0	(none)
138	Classic	Classic	141	142	179	178	Fc_3.5	12.0000	6.8542	0	(none)
139	Classic	Classic	142	143	180	179	Fc_3.5	12.0000	5.8333	0	(none)
140	Classic	Classic	143	144	181	180	Fc_3.5	12.0000	5.8333	0	(none)
141	Classic	Classic	144	145	182	181	Fc_3.5	12.0000	5.6875	0	(none)
142	Classic	Classic	145	146	183	182	Fc_3.5	12.0000	3.9375	0	(none)
143	Classic	Classic	146	147	184	183	Fc_3.5	12.0000	1.75	0	(none)
144	Classic	Classic	147	148	185	184	Fc_3.5	12.0000	3.5	0	(none)
145	Classic	Classic	149	150	187	186	Fc_3.5	12.0000	3	0	(none)



INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Castin g (day)	Structure Group
146	Classic	Classic	150	151	188	187	Fc_3.5	12.0000	1.5	0	(none)
147	Classic	Classic	151	152	189	188	Fc_3.5	12.0000	3.375	0	(none)
148	Classic	Classic	152	153	190	189	Fc_3.5	12.0000	4.875	0	(none)
149	Classic	Classic	153	154	191	190	Fc_3.5	12.0000	5.	0	(none)
150	Classic	Classic	154	155	192	191	Fc_3.5	12.0000	5.	0	(none)
151	Classic	Classic	155	156	193	192	Fc_3.5	12.0000	5.875	0	(none)
152	Classic	Classic	156	157	194	193	Fc_3.5	12.0000	5.875	0	(none)
153	Classic	Classic	157	158	195	194	Fc_3.5	12.0000	4.875	0	(none)
154	Classic	Classic	158	159	196	195	Fc_3.5	12.0000	1.625	0	(none)
155	Classic	Classic	159	160	197	196	Fc_3.5	12.0000	3.25	0	(none)
156	Classic	Classic	160	161	198	197	Fc_3.5	12.0000	7.5	0	(none)
157	Classic	Classic	161	162	199	198	Fc_3.5	12.0000	7.5	0	(none)
158	Classic	Classic	162	163	200	199	Fc_3.5	12.0000	6.75	0	(none)
159	Classic	Classic	163	164	201	200	Fc_3.5	12.0000	4.875	0	(none)
160	Classic	Classic	164	165	202	201	Fc_3.5	12.0000	4.875	0	(none)
161	Classic	Classic	165	166	203	202	Fc_3.5	12.0000	6.3125	0	(none)
162	Classic	Classic	166	167	204	203	Fc_3.5	12.0000	4.5625	0	(none)
163	Classic	Classic	167	168	205	204	Fc_3.5	12.0000	4.5625	0	(none)
164	Classic	Classic	168	169	206	205	Fc_3.5	12.0000	6.3125	0	(none)
165	Classic	Classic	169	170	207	206	Fc_3.5	12.0000	4.875	0	(none)
166	Classic	Classic	170	171	208	207	Fc_3.5	12.0000	4.875	0	(none)
167	Classic	Classic	171	172	209	208	Fc_3.5	12.0000	6.75	0	(none)
168	Classic	Classic	172	173	210	209	Fc_3.5	12.0000	7.5	0	(none)
169	Classic	Classic	173	174	211	210	Fc_3.5	12.0000	7.5	0	(none)
170	Classic	Classic	174	175	212	211	Fc_3.5	12.0000	3.25	0	(none)
171	Classic	Classic	175	176	213	212	Fc_3.5	12.0000	1.625	0	(none)
172	Classic	Classic	176	177	214	213	Fc_3.5	12.0000	4.875	0	(none)
173	Classic	Classic	177	178	215	214	Fc_3.5	12.0000	5.875	0	(none)
174	Classic	Classic	178	179	216	215	Fc_3.5	12.0000	5.875	0	(none)
175	Classic	Classic	179	180	217	216	Fc_3.5	12.0000	5.	0	(none)
176	Classic	Classic	180	181	218	217	Fc_3.5	12.0000	5.	0	(none)
177	Classic	Classic	181	182	219	218	Fc_3.5	12.0000	4.875	0	(none)
178	Classic	Classic	182	183	220	219	Fc_3.5	12.0000	3.375	0	(none)
179	Classic	Classic	183	184	221	220	Fc_3.5	12.0000	1.5	0	(none)
180	Classic	Classic	184	185	222	221	Fc_3.5	12.0000	3	0	(none)
181	Classic	Classic	186	187	224	223	Fc_3.5	12.0000	3	0	(none)
182	Classic	Classic	187	188	225	224	Fc_3.5	12.0000	1.5	0	(none)
183	Classic	Classic	188	189	226	225	Fc_3.5	12.0000	3.375	0	(none)
184	Classic	Classic	189	190	227	226	Fc_3.5	12.0000	4.875	0	(none)
185	Classic	Classic	190	191	228	227	Fc_3.5	12.0000	5.	0	(none)
186	Classic	Classic	191	192	229	228	Fc_3.5	12.0000	5.	0	(none)
187	Classic	Classic	192	193	230	229	Fc_3.5	12.0000	5.875	0	(none)
188	Classic	Classic	193	194	231	230	Fc_3.5	12.0000	5.875	0	(none)
189	Classic	Classic	194	195	232	231	Fc_3.5	12.0000	4.875	0	(none)
190	Classic	Classic	195	196	233	232	Fc_3.5	12.0000	1.625	0	(none)
191	Classic	Classic	196	197	234	233	Fc_3.5	12.0000	3.25	0	(none)
192	Classic	Classic	197	198	235	234	Fc_3.5	12.0000	7.5	0	(none)
193	Classic	Classic	198	199	236	235	Fc_3.5	12.0000	7.5	0	(none)
194	Classic	Classic	199	200	237	236	Fc_3.5	12.0000	6.75	0	(none)



INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Casting (day)	Structure Group
195	Classic	Classic	200	201	238	237	Fc_3.5	12.0000	4.875	0	(none)
196	Classic	Classic	201	202	239	238	Fc_3.5	12.0000	4.875	0	(none)
197	Classic	Classic	202	203	241	240	Fc_3.5	12.0000	5.4375	0	(none)
198	Classic	Classic	203	204	242	241	Fc_3.5	12.0000	4.5625	0	(none)
199	Classic	Classic	204	205	243	242	Fc_3.5	12.0000	4.5625	0	(none)
200	Classic	Classic	205	206	244	243	Fc_3.5	12.0000	5.4375	0	(none)
201	Classic	Classic	206	207	246	245	Fc_3.5	12.0000	4.875	0	(none)
202	Classic	Classic	207	208	247	246	Fc_3.5	12.0000	4.875	0	(none)
203	Classic	Classic	208	209	248	247	Fc_3.5	12.0000	6.75	0	(none)
204	Classic	Classic	209	210	249	248	Fc_3.5	12.0000	7.5	0	(none)
205	Classic	Classic	210	211	250	249	Fc_3.5	12.0000	7.5	0	(none)
206	Classic	Classic	211	212	251	250	Fc_3.5	12.0000	3.25	0	(none)
207	Classic	Classic	212	213	252	251	Fc_3.5	12.0000	1.625	0	(none)
208	Classic	Classic	213	214	253	252	Fc_3.5	12.0000	4.875	0	(none)
209	Classic	Classic	214	215	254	253	Fc_3.5	12.0000	5.875	0	(none)
210	Classic	Classic	215	216	255	254	Fc_3.5	12.0000	5.875	0	(none)
211	Classic	Classic	216	217	256	255	Fc_3.5	12.0000	5.	0	(none)
212	Classic	Classic	217	218	257	256	Fc_3.5	12.0000	5.	0	(none)
213	Classic	Classic	218	219	258	257	Fc_3.5	12.0000	4.875	0	(none)
214	Classic	Classic	219	220	259	258	Fc_3.5	12.0000	3.375	0	(none)
215	Classic	Classic	220	221	260	259	Fc_3.5	12.0000	1.5	0	(none)
216	Classic	Classic	221	222	261	260	Fc_3.5	12.0000	3	0	(none)
217	Classic	Classic	202	240	239	(none)	Fc_3.5	12.0000	.875	0	(none)
218	Classic	Classic	206	245	244	(none)	Fc_3.5	12.0000	.875	0	(none)

INPUT : Rigid Links

Name	Joint 1	Joint 2
C1_1	2	304
C1_2	3	304
C1_4	5	304
C2_1	9	310
C2_3	11	310
C2_4	12	310
C3_1	15	316
C3_3	17	316
C4_1	21	322
C4_5	23	322
C5_1	26	328
C5_2	27	328
C5_4	29	328
C6_1	33	334
C6_3	35	334
C6_4	36	334

STRUCTURE GROUP SUMMARY

Bearings									
Joints									
225	229	233	236	240	244	248	251	255	259

PLATES@PLANE									
Joints									
38	39	40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55	56	57
58	59	60	61	62	63	64	65	66	67
68	69	70	71	72	73	74	75	76	77
78	79	80	81	82	83	84	85	86	87
88	89	90	91	92	93	94	95	96	97
98	99	100	101	102	103	104	105	106	107
108	109	110	111						
Plates									
37	38	39	40	41	42	43	44	45	46
47	48	49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64	65	66
67	68	69	70	71	72				

Load Cases

ID	Name	Analysis Type	Class	Status	Weight Factor X	Weight Factor Y	Weight Factor Z	Is Dynamic	Assigned to Load	# of Joint Load	# of Support	# of Member	# of Member	# of Plate Load	# of Moving	# of THA Load	# of THA Initial
1	Selfweight	Static	None	Acti	0.0000	0.0000	###	No	Yes	0	0	0	0	0	0	0	0
2	SuperDC	Static	None	Acti	0.0000	0.0000	0.0000	No	Yes	10	0	0	0	0	0	0	0
3	LL1	Static	None	Acti	0.0000	0.0000	0.0000	No	Yes	3	0	0	0	0	0	0	0
4	LL2	Static	None	Acti	0.0000	0.0000	0.0000	No	No	5	0	0	0	0	0	0	0
5	LL3	Static	None	Acti	0.0000	0.0000	0.0000	No	No	4	0	0	0	0	0	0	0
6	LL4	Static	None	Acti	0.0000	0.0000	0.0000	No	No	5	0	0	0	0	0	0	0
7	LL5	Static	None	Acti	0.0000	0.0000	0.0000	No	Yes	10	0	0	0	0	0	0	0
8	LL6	Static	None	Acti	0.0000	0.0000	0.0000	No	No	2	0	0	0	0	0	0	0

LOAD CASE SuperDC, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-106.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-111.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-115.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-116.0000	0.0000	0.0000	0.0000
240	0.0000	0.0000	-117.0000	0.0000	0.0000	0.0000
244	0.0000	0.0000	-117.0000	0.0000	0.0000	0.0000
248	0.0000	0.0000	-116.0000	0.0000	0.0000	0.0000
251	0.0000	0.0000	-115.0000	0.0000	0.0000	0.0000
255	0.0000	0.0000	-114.0000	0.0000	0.0000	0.0000
259	0.0000	0.0000	-103.0000	0.0000	0.0000	0.0000



LOAD CASE LL1, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-7.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-40.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-7.0000	0.0000	0.0000	0.0000

LOAD CASE LL2, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-33.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-17.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-33.0000	0.0000	0.0000	0.0000
240	0.0000	0.0000	-1.0000	0.0000	0.0000	0.0000

LOAD CASE LL3, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-30.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-38.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-37.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-9.0000	0.0000	0.0000	0.0000

LOAD CASE LL4, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-23.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-28.0000	0.0000	0.0000	0.0000
240	0.0000	0.0000	-7.0000	0.0000	0.0000	0.0000

LOAD CASE LL5, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-23.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-28.0000	0.0000	0.0000	0.0000
240	0.0000	0.0000	-10.0000	0.0000	0.0000	0.0000
244	0.0000	0.0000	-26.0000	0.0000	0.0000	0.0000
248	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
251	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
255	0.0000	0.0000	-25.0000	0.0000	0.0000	0.0000
259	0.0000	0.0000	-3.0000	0.0000	0.0000	0.0000



LOAD CASE LL6, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
240	0.0000	0.0000	-27.0000	0.0000	0.0000	0.0000
244	0.0000	0.0000	-27.0000	0.0000	0.0000	0.0000

LOAD COMBINATION Str I_LL1

Load Case	Factor
Selfweight	1.25
SuperDC	1.25
LL1	1.75

LOAD COMBINATION Str I_LL 5

Load Case	Factor
Selfweight	1.25
SuperDC	1.25
LL5	1.75

POST-COMPUTED RESULT CASES SUMMARY

Extreme Effect Group: LLMaxMin

Allow Positive Minimum/Negative	Yes		
Load Class	None		
Case	Factor	Load Class	Incremental
LL1	1	None	No
LL2	1	None	No
LL3	1	None	No
LL4	1	None	No
LL5	1	None	No
LL6	1	None	No

Linear Result Combination: StrI Max

Load Class	None		
Case	Factor	Load Class	Incremental
Selfweight	1.25	None	No
SuperDC	1.25	None	No
LLMaxMin	1.75	None	No

Linear Result Combination: Service DC

Load Class	None		
Case	Factor	Load Class	Incremental
Selfweight	1	None	No
SuperDC	1	None	No

Result Cases Summary

Load Cases: Selfweight

Solved: 9/26/2019

Load Class: None

Load Cases: SuperDC

Solved: 9/26/2019

Load Class: None

Load Cases: LL1

Solved: 9/26/2019

Load Class: None

Load Cases: LL2

Solved: 9/26/2019

Load Class: None

Load Cases: LL3

Solved: 9/26/2019

Load Class: None

Load Cases: LL4

Solved: 9/26/2019

Load Class: None

Load Cases: LL5

Solved: 9/26/2019

Load Class: None

Load Cases: LL6

Solved: 9/26/2019

Load Class: None

Extreme Effect Groups: LLMaxMin



Load Cases: LL1
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL2
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL3
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL4
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL5
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL6
 Solved: 9/26/2019
 Load Class: None

Linear Combinations: Strl Max
 Load Cases: Selfweight * 1.25

Solved: 9/26/2019
 Load Class: None

Load Cases: SuperDC * 1.25

Solved: 9/26/2019
 Load Class: None

Extreme Effect Groups: LLMaxMin * 1.75

Load Cases: LL1
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL2
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL3
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL4
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL5
 Solved: 9/26/2019
 Load Class: None

Load Cases: LL6
 Solved: 9/26/2019
 Load Class: None

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
1	Selfweight	-0.3762	-1.2437	0.6160	0.0000	0.0000	0.0000	0.0000	0.0000
1	SuperDC	-3.5743	-11.6709	5.7821	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL1	-0.3764	-1.5625	0.6398	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL2	-0.2330	-0.9780	0.3952	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
1	LL3	-1.0854	-3.6948	1.7709	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL4	-0.7973	-2.6686	1.2956	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL5	-0.7881	-2.6219	1.2787	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL6	0.0261	0.1296	-0.0471	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	Selfweight	-0.0501	-3.8221	-0.2311	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	SuperDC	-0.3529	-31.0627	-0.2009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL1	-0.0834	-4.5214	-0.6195	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL2	-0.0482	-3.0654	-0.3296	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL3	-0.1272	-9.9320	-0.3489	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL4	-0.0857	-7.2297	-0.1422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL5	-0.0833	-7.0975	-0.1101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL6	0.0081	0.3458	0.0941	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	Selfweight	-0.2607	-1.3392	-1.4838	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	SuperDC	-1.4247	-11.3509	-9.3428	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL1	-0.5044	-1.5898	-1.9970	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL2	-0.3248	-1.0049	-1.4835	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL3	-0.5837	-3.6228	-3.2258	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL4	-0.3844	-2.6111	-2.3321	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL5	-0.3675	-2.5624	-2.2684	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL6	0.0508	0.1337	0.1552	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	Selfweight	-0.1189	-1.8626	1.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	SuperDC	-2.3304	-12.8050	7.2751	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL1	0.3312	-2.5810	0.9914	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL2	0.0944	-2.3737	0.8844	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL3	-0.4196	-4.2281	2.2386	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL4	-0.4448	-3.2777	1.7331	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL5	-0.4727	-3.2153	1.7120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL6	-0.0837	0.1037	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	Selfweight	0.6159	-2.0593	-1.1946	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	SuperDC	-0.8699	-14.7066	-8.6104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL1	3.2586	-2.7637	-2.0083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL2	2.0046	-2.5864	-1.8929	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL3	1.2170	-4.7517	-2.9217	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL4	0.3916	-3.7165	-2.2830	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL5	0.2215	-3.6613	-2.2360	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL6	-0.4478	0.0832	0.0754	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	Selfweight	2.0733	0.4186	0.2013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	SuperDC	10.4187	1.8561	0.8459	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL1	6.6140	0.2874	-0.1064	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL2	5.0536	0.2367	-0.0586	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL3	5.4745	0.6029	0.0697	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL4	3.6114	0.4554	0.1066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL5	3.3182	0.4524	0.1331	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL6	-0.6867	-0.0139	0.0662	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	Selfweight	2.0539	0.4722	-0.1824	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	SuperDC	10.5979	1.9998	-0.8557	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL1	6.5203	0.2305	0.1483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL2	5.2462	0.4238	-0.0612	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL3	6.0340	0.5383	-0.2588	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
7	LL4	3.9800	0.5038	-0.2450	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL5	3.5448	0.4749	-0.2097	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL6	-0.9443	0.0054	0.0333	0.0000	0.0000	0.0000	0.0000	0.0000
8	Selfweight	0.2270	-2.0444	1.2377	0.0000	0.0000	0.0000	0.0000	0.0000
8	SuperDC	-1.3006	-13.3641	7.7322	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL1	2.9048	-2.1672	1.7573	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL2	2.2988	-2.8234	1.6460	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL3	3.2996	-3.5487	1.6990	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL4	1.5580	-3.2078	1.5794	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL5	0.8859	-3.1416	1.7002	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL6	-1.4944	-0.1606	0.3346	0.0000	0.0000	0.0000	0.0000	0.0000
9	Selfweight	-0.3133	-2.0434	-0.7430	0.0000	0.0000	0.0000	0.0000	0.0000
9	SuperDC	-2.5286	-13.3568	-5.1537	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL1	0.1587	-2.1973	-0.4369	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL2	-0.1633	-3.0349	-1.2254	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL3	-0.0875	-4.0322	-1.8261	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL4	-0.3467	-3.4957	-1.6145	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL5	-0.4221	-3.3053	-1.3655	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL6	-0.2471	0.0711	0.2642	0.0000	0.0000	0.0000	0.0000	0.0000
10	Selfweight	-0.3232	-1.6178	1.9934	0.0000	0.0000	0.0000	0.0000	0.0000
10	SuperDC	-1.4037	-11.2375	12.0033	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL1	-0.4375	-1.1121	1.9728	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL2	0.0116	-2.3325	2.6628	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL3	0.3845	-3.1387	3.5576	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL4	0.2175	-2.8951	3.0436	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL5	-0.1217	-2.7991	3.0001	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL6	-0.5336	-0.0758	0.0876	0.0000	0.0000	0.0000	0.0000	0.0000
11	Selfweight	-0.4033	-3.9666	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000
11	SuperDC	-2.4215	-25.9256	-0.2403	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL1	-0.3855	-2.5524	0.4092	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL2	-0.0598	-5.4396	0.2948	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL3	0.1012	-6.3406	0.6828	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL4	-0.0051	-6.3783	0.2825	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL5	-0.3712	-6.2400	0.1624	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL6	-0.5328	-0.4550	-0.2607	0.0000	0.0000	0.0000	0.0000	0.0000
12	Selfweight	-0.1243	-1.5963	-0.7843	0.0000	0.0000	0.0000	0.0000	0.0000
12	SuperDC	-1.0582	-10.7356	-4.7939	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL1	-1.0393	-0.8522	-0.1724	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL2	2.0427	-2.1143	-1.0153	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL3	1.5192	-1.9563	-0.1687	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL4	2.0296	-2.3476	-0.9020	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL5	0.5149	-2.4182	-0.9232	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL6	-1.9356	-0.5082	-0.4031	0.0000	0.0000	0.0000	0.0000	0.0000
13	Selfweight	1.4819	0.9735	-0.0472	0.0000	0.0000	0.0000	0.0000	0.0000
13	SuperDC	10.2580	5.2413	-0.9029	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL1	-1.1182	0.2654	0.1206	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL2	4.7775	0.8780	-0.2190	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL3	1.1083	0.7344	0.2322	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL4	4.1676	0.9770	-0.0997	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
13	LL5	2.4904	1.0804	-0.1151	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL6	-0.8657	0.4066	-0.1393	0.0000	0.0000	0.0000	0.0000	0.0000
14	Selfweight	-0.6444	-2.4890	1.2515	0.0000	0.0000	0.0000	0.0000	0.0000
14	SuperDC	-2.6044	-16.4948	8.2855	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL1	-2.0272	-0.4910	0.4006	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL2	2.1015	-2.5889	1.6612	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL3	-1.8969	-1.7012	1.2971	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL4	1.2948	-2.7173	1.6278	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL5	-1.2242	-3.3493	2.1578	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL6	-0.4915	-1.4082	0.0723	0.0000	0.0000	0.0000	0.0000	0.0000
15	Selfweight	-0.4859	-1.8700	-1.3520	0.0000	0.0000	0.0000	0.0000	0.0000
15	SuperDC	-3.2325	-12.4451	-8.6628	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL1	-0.4809	-0.1729	0.1115	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL2	0.3024	-2.0754	-0.5949	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL3	-0.5220	-1.0297	-0.0745	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL4	0.0210	-2.1495	-0.8568	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL5	-0.5642	-2.2196	-0.9423	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL6	-0.7000	-1.2748	-1.8930	0.0000	0.0000	0.0000	0.0000	0.0000
16	Selfweight	-0.5363	-1.9960	1.4143	0.0000	0.0000	0.0000	0.0000	0.0000
16	SuperDC	-2.7770	-13.6007	8.5729	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL1	-0.2631	0.1176	-0.2425	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL2	-0.9799	-0.9418	1.3159	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL3	-0.7644	-0.2531	0.1896	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL4	-0.7971	-1.2183	1.3114	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL5	-1.3493	-2.2229	1.4288	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL6	0.7425	-2.3993	1.1113	0.0000	0.0000	0.0000	0.0000	0.0000
17	Selfweight	-0.7978	-2.4143	-1.3940	0.0000	0.0000	0.0000	0.0000	0.0000
17	SuperDC	-3.4355	-16.2206	-8.5912	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL1	-1.5169	-0.1995	-0.3346	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL2	-2.0390	-1.3636	-0.5077	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL3	-3.0470	-0.8686	-0.7093	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL4	-1.6680	-1.6689	-0.6874	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL5	-3.6786	-3.0512	-1.9366	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL6	3.6292	-2.3055	-1.1728	0.0000	0.0000	0.0000	0.0000	0.0000
18	Selfweight	1.1620	0.6510	0.3751	0.0000	0.0000	0.0000	0.0000	0.0000
18	SuperDC	8.1202	3.3868	2.6337	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL1	-0.9745	0.0250	-0.0133	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL2	-1.6151	0.3572	0.2542	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL3	-2.0577	0.1890	0.0821	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL4	-1.0704	0.4137	0.3534	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL5	-0.7070	0.6225	0.2834	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL6	5.5022	0.4799	0.3094	0.0000	0.0000	0.0000	0.0000	0.0000
19	Selfweight	1.1620	0.6510	-0.3751	0.0000	0.0000	0.0000	0.0000	0.0000
19	SuperDC	8.1147	3.3858	-2.6310	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL1	-0.7820	-0.0239	-0.0552	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL2	-1.7915	0.0145	-0.0907	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL3	-1.8343	-0.0405	-0.1162	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL4	-1.4481	0.0315	-0.0460	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL5	0.1640	0.6911	-0.7905	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
19	LL6	5.5022	0.4799	-0.3094	0.0000	0.0000	0.0000	0.0000	0.0000
20	Selfweight	-0.7978	-2.4143	1.3940	0.0000	0.0000	0.0000	0.0000	0.0000
20	SuperDC	-3.4549	-16.2198	8.5972	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL1	-0.5356	0.0912	-0.0704	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL2	-2.2552	-0.3688	0.3838	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL3	-1.6021	0.0327	0.0160	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL4	-2.1974	-0.4633	0.4923	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL5	-1.1049	-3.2223	1.4074	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL6	3.6292	-2.3055	1.1728	0.0000	0.0000	0.0000	0.0000	0.0000
21	Selfweight	-0.5363	-1.9960	-1.4143	0.0000	0.0000	0.0000	0.0000	0.0000
21	SuperDC	-2.7770	-13.5841	-8.5679	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL1	-0.0969	0.1333	0.0684	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL2	-0.5091	-0.1123	0.1316	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL3	-0.3138	0.1979	0.1611	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL4	-0.4987	-0.1766	0.1186	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL5	-0.7087	-2.6650	-2.0209	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL6	0.7425	-2.3993	-1.1113	0.0000	0.0000	0.0000	0.0000	0.0000
22	Selfweight	-0.4859	-1.8700	1.3520	0.0000	0.0000	0.0000	0.0000	0.0000
22	SuperDC	-3.2589	-12.4906	8.6756	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL1	0.0072	0.0619	-0.1249	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL2	-0.2136	0.1953	-0.3179	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL3	-0.0803	0.1212	-0.2932	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL4	-0.2800	0.1131	-0.2619	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL5	-0.4340	-3.0183	1.8590	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL6	-0.7000	-1.2748	1.8930	0.0000	0.0000	0.0000	0.0000	0.0000
23	Selfweight	-0.6444	-2.4890	-1.2515	0.0000	0.0000	0.0000	0.0000	0.0000
23	SuperDC	-2.6816	-16.5517	-8.3260	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL1	-0.1579	0.0406	-0.0443	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL2	-1.4339	-0.1063	-0.3067	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL3	-0.8070	-0.0180	-0.2095	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL4	-1.6534	-0.2241	-0.3798	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL5	0.6025	-3.8157	-2.0299	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL6	-0.4915	-1.4082	-0.0723	0.0000	0.0000	0.0000	0.0000	0.0000
24	Selfweight	1.4819	0.9735	0.0472	0.0000	0.0000	0.0000	0.0000	0.0000
24	SuperDC	10.2696	5.2592	0.9006	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL1	-0.0499	-0.0237	-0.0058	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL2	-0.8459	-0.0202	-0.0180	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL3	-0.3793	-0.0432	-0.0084	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL4	-0.9586	-0.0055	-0.0053	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL5	4.0098	1.2121	0.1997	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL6	-0.8657	0.4066	0.1393	0.0000	0.0000	0.0000	0.0000	0.0000
25	Selfweight	-0.1243	-1.5963	0.7843	0.0000	0.0000	0.0000	0.0000	0.0000
25	SuperDC	-0.9743	-10.7611	4.7667	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL1	0.0755	0.0559	-0.0471	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL2	-0.5070	0.0742	-0.0803	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL3	-0.0132	0.1483	-0.1301	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL4	-0.5690	0.1036	-0.1063	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL5	2.0076	-2.3947	0.7902	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL6	-1.9356	-0.5082	0.4031	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
26	Selfweight	-0.4033	-3.9666	-0.0101	0.0000	0.0000	0.0000	0.0000	0.0000
26	SuperDC	-2.4105	-26.0503	0.1673	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL1	0.0251	0.0711	-0.0077	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL2	-0.1072	0.1939	0.0215	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL3	0.0150	0.2222	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL4	-0.1211	0.2456	0.0422	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL5	-0.0319	-6.3171	-0.3890	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL6	-0.5328	-0.4550	0.2607	0.0000	0.0000	0.0000	0.0000	0.0000
27	Selfweight	-0.3232	-1.6178	-1.9934	0.0000	0.0000	0.0000	0.0000	0.0000
27	SuperDC	-1.4053	-11.3018	-12.1383	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL1	0.0297	0.0237	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL2	-0.0897	0.0808	0.0451	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL3	0.0336	0.0839	0.0336	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL4	-0.0956	0.1074	0.0473	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL5	0.1971	-2.9174	-3.0004	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL6	-0.5336	-0.0758	-0.0876	0.0000	0.0000	0.0000	0.0000	0.0000
28	Selfweight	-0.3133	-2.0434	0.7430	0.0000	0.0000	0.0000	0.0000	0.0000
28	SuperDC	-2.4717	-13.4957	5.1840	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL1	0.0109	-0.0142	0.0141	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL2	0.0033	0.0886	-0.0909	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL3	0.0134	-0.0260	0.0073	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL4	-0.0118	0.0569	-0.0884	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL5	-0.2426	-3.2578	1.5224	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL6	-0.2471	0.0711	-0.2642	0.0000	0.0000	0.0000	0.0000	0.0000
29	Selfweight	0.2270	-2.0444	-1.2377	0.0000	0.0000	0.0000	0.0000	0.0000
29	SuperDC	-0.8306	-13.4738	-7.8222	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL1	0.0596	-0.0085	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL2	-0.1071	0.0585	-0.0136	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL3	0.0389	-0.0339	-0.0261	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL4	-0.1938	0.0079	-0.0577	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL5	2.0286	-2.8928	-1.3365	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL6	-1.4944	-0.1606	-0.3346	0.0000	0.0000	0.0000	0.0000	0.0000
30	Selfweight	2.0539	0.4722	0.1824	0.0000	0.0000	0.0000	0.0000	0.0000
30	SuperDC	11.3076	2.0149	0.8302	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL1	0.0595	0.0031	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL2	-0.0608	-0.0155	-0.0150	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL3	0.0976	0.0083	-0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL4	-0.0709	-0.0060	-0.0189	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL5	4.1355	0.4990	0.1912	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL6	-0.9443	0.0054	-0.0333	0.0000	0.0000	0.0000	0.0000	0.0000
31	Selfweight	2.0733	0.4186	-0.2013	0.0000	0.0000	0.0000	0.0000	0.0000
31	SuperDC	11.1204	1.8313	-0.8038	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL1	0.0592	-0.0050	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL2	-0.0216	-0.0024	-0.0028	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL3	0.1273	-0.0181	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL4	0.0013	-0.0146	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL5	3.7491	0.1663	0.0381	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL6	-0.6867	-0.0139	-0.0662	0.0000	0.0000	0.0000	0.0000	0.0000
32	Selfweight	0.6159	-2.0593	1.1946	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
32	SuperDC	-0.3593	-14.6693	8.6659	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL1	0.0809	0.0315	-0.0220	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL2	0.0229	0.0366	-0.0276	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL3	0.2284	0.1175	-0.0841	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL4	0.1211	0.1099	-0.0812	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL5	1.2734	-2.0961	1.5505	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL6	-0.4478	0.0832	-0.0754	0.0000	0.0000	0.0000	0.0000	0.0000
33	Selfweight	-0.1189	-1.8626	-1.0001	0.0000	0.0000	0.0000	0.0000	0.0000
33	SuperDC	-2.2081	-12.8005	-7.1784	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL1	0.0197	0.0228	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL2	0.0092	0.0322	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL3	0.0587	0.0901	0.0277	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL4	0.0365	0.0912	0.0288	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL5	0.0031	-1.9158	-0.6932	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL6	-0.0837	0.1037	0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
34	Selfweight	-0.2607	-1.3392	1.4838	0.0000	0.0000	0.0000	0.0000	0.0000
34	SuperDC	-1.4433	-11.1434	9.3068	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL1	-0.0067	-0.0236	0.0136	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL2	-0.0025	-0.0077	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL3	-0.0178	-0.0666	0.0296	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL4	-0.0085	-0.0358	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL5	-0.1989	-0.5869	1.0391	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL6	0.0508	0.1337	-0.1552	0.0000	0.0000	0.0000	0.0000	0.0000
35	Selfweight	-0.0501	-3.8221	0.2311	0.0000	0.0000	0.0000	0.0000	0.0000
35	SuperDC	-0.3505	-30.5514	0.2740	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL1	-0.0014	-0.0494	0.0174	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL2	-0.0008	-0.0094	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL3	-0.0039	-0.1317	0.0495	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL4	-0.0023	-0.0589	0.0281	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL5	-0.0250	-1.9351	0.1699	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL6	0.0081	0.3458	-0.0941	0.0000	0.0000	0.0000	0.0000	0.0000
36	Selfweight	-0.3762	-1.2437	-0.6160	0.0000	0.0000	0.0000	0.0000	0.0000
36	SuperDC	-3.4901	-11.4454	-5.6502	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL1	-0.0054	-0.0237	-0.0095	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL2	-0.0021	-0.0082	-0.0036	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL3	-0.0156	-0.0671	-0.0275	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL4	-0.0091	-0.0368	-0.0159	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL5	-0.1284	-0.5619	-0.2189	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL6	0.0261	0.1296	0.0471	0.0000	0.0000	0.0000	0.0000	0.0000
37	Selfweight	0.3417	-1.1842	0.2790	0.0000	0.0000	0.0000	0.0000	0.0000
37	SuperDC	3.0442	-14.4992	3.0076	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL1	0.3919	-1.6139	0.2321	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL2	0.2400	-1.0311	0.1471	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL3	0.9592	-4.4340	0.8720	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL4	0.6922	-3.2587	0.6554	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL5	0.6802	-3.2181	0.6526	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL6	-0.0335	0.1113	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
38	Selfweight	0.4959	-1.8547	-0.2416	0.0000	0.0000	0.0000	0.0000	0.0000
38	SuperDC	4.2528	-18.6504	-0.2375	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
38	LL1	0.5626	-2.4044	-0.4622	0.0000	0.0000	0.0000	0.0000	0.0000
38	LL2	0.3595	-1.5736	-0.3457	0.0000	0.0000	0.0000	0.0000	0.0000
38	LL3	1.3456	-5.8441	-0.2585	0.0000	0.0000	0.0000	0.0000	0.0000
38	LL4	0.9749	-4.2653	-0.1504	0.0000	0.0000	0.0000	0.0000	0.0000
38	LL5	0.9569	-4.1983	-0.1290	0.0000	0.0000	0.0000	0.0000	0.0000
38	LL6	-0.0475	0.1805	0.0521	0.0000	0.0000	0.0000	0.0000	0.0000
39	Selfweight	-0.1230	-1.4003	-0.5083	0.0000	0.0000	0.0000	0.0000	0.0000
39	SuperDC	-0.8222	-13.6167	-1.8899	0.0000	0.0000	0.0000	0.0000	0.0000
39	LL1	-0.1034	-1.9544	-0.9051	0.0000	0.0000	0.0000	0.0000	0.0000
39	LL2	-0.1799	-1.3353	-0.5618	0.0000	0.0000	0.0000	0.0000	0.0000
39	LL3	-0.2150	-4.3429	-0.8983	0.0000	0.0000	0.0000	0.0000	0.0000
39	LL4	-0.2115	-3.1680	-0.5540	0.0000	0.0000	0.0000	0.0000	0.0000
39	LL5	-0.2164	-3.1103	-0.5132	0.0000	0.0000	0.0000	0.0000	0.0000
39	LL6	-0.0209	0.1486	0.1120	0.0000	0.0000	0.0000	0.0000	0.0000
40	Selfweight	0.1676	-1.7191	0.0141	0.0000	0.0000	0.0000	0.0000	0.0000
40	SuperDC	-0.6914	-13.3069	2.0261	0.0000	0.0000	0.0000	0.0000	0.0000
40	LL1	0.6516	-2.4259	-0.7690	0.0000	0.0000	0.0000	0.0000	0.0000
40	LL2	0.4379	-2.1257	-0.4601	0.0000	0.0000	0.0000	0.0000	0.0000
40	LL3	0.1236	-4.3389	0.1819	0.0000	0.0000	0.0000	0.0000	0.0000
40	LL4	-0.0074	-3.3182	0.2843	0.0000	0.0000	0.0000	0.0000	0.0000
40	LL5	-0.0479	-3.2574	0.3266	0.0000	0.0000	0.0000	0.0000	0.0000
40	LL6	-0.0984	0.1137	0.1162	0.0000	0.0000	0.0000	0.0000	0.0000
41	Selfweight	0.7040	-1.3428	-0.9774	0.0000	0.0000	0.0000	0.0000	0.0000
41	SuperDC	2.4153	-10.6478	-6.9600	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL1	2.1177	-2.1409	-2.5862	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL2	1.5629	-2.0132	-2.2221	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL3	1.5310	-3.4487	-2.7884	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL4	0.9527	-2.7095	-2.0548	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL5	0.8536	-2.6713	-1.9687	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL6	-0.2375	0.0512	0.1816	0.0000	0.0000	0.0000	0.0000	0.0000
42	Selfweight	0.6232	0.1749	-0.5228	0.0000	0.0000	0.0000	0.0000	0.0000
42	SuperDC	2.4642	-2.1480	-4.8075	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL1	3.0064	-0.8445	-1.4300	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL2	2.1963	-0.6889	-1.3392	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL3	1.9816	-0.7931	-1.8874	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL4	1.1718	-0.5944	-1.4189	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL5	1.0106	-0.5913	-1.3418	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL6	-0.3785	0.0154	0.1424	0.0000	0.0000	0.0000	0.0000	0.0000
43	Selfweight	0.5278	0.2508	0.5129	0.0000	0.0000	0.0000	0.0000	0.0000
43	SuperDC	2.2116	-1.3154	4.0182	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL1	2.9956	-0.6678	1.2962	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL2	2.1375	-0.4512	0.9801	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL3	2.4209	-0.3299	0.8282	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL4	1.3572	-0.2640	0.7506	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL5	1.1065	-0.3088	0.8657	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL6	-0.6072	-0.0769	0.2438	0.0000	0.0000	0.0000	0.0000	0.0000
44	Selfweight	0.5220	-1.3405	1.1310	0.0000	0.0000	0.0000	0.0000	0.0000
44	SuperDC	1.7277	-9.9385	6.7998	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL1	1.8829	-1.6978	2.4798	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
44	LL2	1.4297	-2.1145	1.9955	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL3	1.7789	-2.7039	1.9520	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL4	1.0292	-2.3968	1.5800	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL5	0.8159	-2.3524	1.6505	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL6	-0.4745	-0.1063	0.1648	0.0000	0.0000	0.0000	0.0000	0.0000
45	Selfweight	-0.0228	-2.1494	0.1099	0.0000	0.0000	0.0000	0.0000	0.0000
45	SuperDC	-0.6790	-15.7272	-0.9455	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL1	0.5201	-2.2218	0.8980	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL2	0.4651	-3.3967	0.1603	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL3	0.9231	-4.7134	-0.0576	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL4	0.4200	-4.0957	-0.2877	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL5	0.1590	-3.9009	-0.1449	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL6	-0.5206	0.0481	0.0848	0.0000	0.0000	0.0000	0.0000	0.0000
46	Selfweight	-0.3627	-1.8202	0.3339	0.0000	0.0000	0.0000	0.0000	0.0000
46	SuperDC	-1.6248	-14.8268	1.3677	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL1	-0.2648	-1.5696	0.7391	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL2	-0.1426	-3.1906	0.2909	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL3	0.1577	-4.5542	0.4431	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL4	-0.0384	-4.0251	0.1672	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL5	-0.2266	-3.7863	0.3648	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL6	-0.3402	0.1100	0.1945	0.0000	0.0000	0.0000	0.0000	0.0000
47	Selfweight	0.1862	-2.4229	0.2229	0.0000	0.0000	0.0000	0.0000	0.0000
47	SuperDC	1.6095	-18.4161	1.5853	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL1	-0.1007	-1.6272	0.7478	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL2	0.8510	-3.6955	0.0864	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL3	1.2221	-4.6076	0.6891	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL4	1.1070	-4.5189	0.1542	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL5	0.6475	-4.4510	0.4247	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL6	-0.5832	-0.3315	0.2020	0.0000	0.0000	0.0000	0.0000	0.0000
48	Selfweight	0.2823	-1.1582	-1.0844	0.0000	0.0000	0.0000	0.0000	0.0000
48	SuperDC	1.6180	-9.3157	-6.6004	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL1	-0.4836	-0.7664	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL2	1.2518	-1.8135	-1.7406	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL3	0.5774	-1.9616	-0.2418	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL4	1.1944	-2.1412	-1.4827	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL5	0.5610	-2.1452	-1.3583	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL6	-0.6042	-0.3364	-0.3073	0.0000	0.0000	0.0000	0.0000	0.0000
49	Selfweight	-0.2587	0.3470	0.1894	0.0000	0.0000	0.0000	0.0000	0.0000
49	SuperDC	-1.0071	-0.5210	-0.1499	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL1	-1.0041	0.0586	0.2692	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL2	1.4841	-0.2804	-0.2409	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL3	-0.2772	0.1537	0.8685	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL4	1.0911	-0.1177	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL5	-0.1137	-0.2090	0.2803	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL6	-0.9078	0.1092	-0.3184	0.0000	0.0000	0.0000	0.0000	0.0000
50	Selfweight	0.3506	-1.4681	1.1528	0.0000	0.0000	0.0000	0.0000	0.0000
50	SuperDC	2.9655	-12.0493	8.3025	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL1	-0.6189	-0.3013	0.2359	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL2	1.8652	-2.2208	2.1862	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
50	LL3	-0.0214	-1.2310	1.2860	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL4	1.4990	-2.1845	2.0209	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL5	0.6288	-2.5615	2.2354	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL6	-0.3673	-0.7822	-0.2094	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	Selfweight	-0.3970	-1.8819	-0.5108	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	SuperDC	-2.6676	-13.4486	-3.1537	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL1	-0.5305	-0.1035	-0.2667	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL2	0.1969	-1.9941	0.7855	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL3	-0.6146	-0.8980	-0.0256	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL4	0.0267	-2.1136	0.3603	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL5	-0.8248	-2.3089	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL6	-0.2516	-1.6099	-1.4376	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	Selfweight	-0.3708	-1.8366	0.5242	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	SuperDC	-1.7407	-14.3569	2.0855	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL1	-0.4828	0.1146	-0.0081	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL2	-0.7474	-1.0494	1.1397	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL3	-0.9517	-0.2886	0.4718	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL4	-0.6190	-1.3810	0.8913	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL5	-1.1965	-2.1574	1.0177	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL6	0.8867	-2.5737	-0.7833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	Selfweight	0.1852	-1.6187	-1.0289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	SuperDC	2.2028	-13.3518	-6.1241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL1	-0.4688	-0.1429	-0.1729	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL2	-0.8161	-0.8754	-0.0359	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL3	-0.9892	-0.5810	-0.2739	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL4	-0.5163	-1.2174	-0.1993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL5	-0.8110	-2.2877	-1.2444	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL6	2.1527	-2.1178	-1.3790	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	Selfweight	-0.1923	0.3288	-0.6001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	SuperDC	-0.8746	0.1086	-3.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL1	-0.6460	-0.0819	-0.2514	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL2	-1.2986	0.0554	-0.1041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL3	-1.4484	-0.0966	-0.4241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL4	-1.0855	0.0035	-0.0261	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL5	-1.4782	0.0378	-1.2814	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL6	2.2870	-0.0014	-0.4006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	Selfweight	-0.1923	0.3288	0.6001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	SuperDC	-0.8781	0.1066	3.0640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL1	-0.4298	0.0094	-0.1368	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL2	-1.1814	0.0036	0.2244	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL3	-1.0548	0.0199	-0.1325	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL4	-1.0289	0.0204	0.4084	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL5	-0.9581	0.0283	-0.0790	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL6	2.2870	-0.0014	0.4006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	Selfweight	0.1852	-1.6187	1.0289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	SuperDC	2.1974	-13.3486	6.1292	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL1	-0.2692	0.0619	-0.1755	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL2	-0.8094	-0.3021	0.0575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL3	-0.6823	0.0068	-0.2593	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
56	LL4	-0.7178	-0.3606	0.1954	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL5	0.0414	-2.6820	0.6744	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL6	2.1527	-2.1178	1.3790	0.0000	0.0000	0.0000	0.0000	0.0000
57	Selfweight	-0.3708	-1.8366	-0.5242	0.0000	0.0000	0.0000	0.0000	0.0000
57	SuperDC	-1.7582	-14.3497	-2.0760	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL1	-0.1177	0.1254	-0.0884	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL2	-0.5631	-0.0029	-0.2931	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL3	-0.3720	0.2118	-0.2238	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL4	-0.5585	-0.0613	-0.2512	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL5	-0.4815	-2.9644	-0.7386	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL6	0.8867	-2.5737	0.7833	0.0000	0.0000	0.0000	0.0000	0.0000
58	Selfweight	-0.3970	-1.8819	0.5108	0.0000	0.0000	0.0000	0.0000	0.0000
58	SuperDC	-2.6846	-13.4823	3.1727	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL1	-0.0380	0.0833	-0.0714	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL2	-0.4766	0.1840	-0.0784	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL3	-0.2193	0.1650	-0.1190	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL4	-0.5149	0.1077	-0.0099	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL5	-0.3118	-3.1461	0.3412	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL6	-0.2516	-1.6099	1.4376	0.0000	0.0000	0.0000	0.0000	0.0000
59	Selfweight	0.3506	-1.4681	-1.1528	0.0000	0.0000	0.0000	0.0000	0.0000
59	SuperDC	2.9495	-12.0908	-8.3343	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL1	-0.0346	0.0163	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL2	-0.4612	-0.0731	-0.1704	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL3	-0.2176	-0.0362	-0.1398	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL4	-0.5161	-0.1554	-0.2055	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL5	1.2503	-2.8755	-2.2181	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL6	-0.3673	-0.7822	0.2094	0.0000	0.0000	0.0000	0.0000	0.0000
60	Selfweight	-0.2587	0.3470	-0.1894	0.0000	0.0000	0.0000	0.0000	0.0000
60	SuperDC	-1.0163	-0.5123	0.1124	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL1	-0.0069	-0.0131	-0.0534	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL2	-0.5430	-0.0746	-0.2178	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL3	-0.1953	-0.0473	-0.1817	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL4	-0.6185	-0.0788	-0.2519	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL5	0.7647	-0.0722	-0.1941	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL6	-0.9078	0.1092	0.3184	0.0000	0.0000	0.0000	0.0000	0.0000
61	Selfweight	0.2823	-1.1582	1.0844	0.0000	0.0000	0.0000	0.0000	0.0000
61	SuperDC	1.6342	-9.3334	6.5768	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL1	0.0152	0.0429	-0.0447	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL2	-0.2541	0.0763	-0.1478	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL3	-0.0473	0.1226	-0.1410	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL4	-0.2778	0.1052	-0.1719	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL5	1.1728	-2.1041	1.4136	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL6	-0.6042	-0.3364	0.3073	0.0000	0.0000	0.0000	0.0000	0.0000
62	Selfweight	0.1862	-2.4229	-0.2229	0.0000	0.0000	0.0000	0.0000	0.0000
62	SuperDC	1.6393	-18.4905	-1.6423	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL1	0.0224	0.0514	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL2	-0.1548	0.1223	-0.1191	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL3	-0.0053	0.1575	-0.0288	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL4	-0.1738	0.1618	-0.1274	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
62	LL5	1.0809	-4.5472	-0.2903	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL6	-0.5832	-0.3315	-0.2020	0.0000	0.0000	0.0000	0.0000	0.0000
63	Selfweight	-0.3627	-1.8202	-0.3339	0.0000	0.0000	0.0000	0.0000	0.0000
63	SuperDC	-1.6165	-14.9295	-1.4336	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL1	0.0180	0.0137	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL2	-0.0417	0.1264	-0.0734	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL3	0.0208	0.0756	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL4	-0.0497	0.1536	-0.0649	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL5	-0.0005	-4.0178	-0.2937	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL6	-0.3402	0.1100	-0.1945	0.0000	0.0000	0.0000	0.0000	0.0000
64	Selfweight	-0.0228	-2.1494	-0.1099	0.0000	0.0000	0.0000	0.0000	0.0000
64	SuperDC	-0.5790	-15.8609	0.8430	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL1	0.0305	-0.0074	0.0067	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL2	-0.0469	0.0988	-0.0636	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL3	0.0440	-0.0041	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL4	-0.0554	0.0765	-0.0533	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL5	0.4856	-3.9026	0.1764	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL6	-0.5206	0.0481	-0.0848	0.0000	0.0000	0.0000	0.0000	0.0000
65	Selfweight	0.5220	-1.3405	-1.1310	0.0000	0.0000	0.0000	0.0000	0.0000
65	SuperDC	1.9566	-10.0260	-6.9957	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL1	0.0298	-0.0070	-0.0052	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL2	-0.0275	0.0382	-0.0167	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL3	0.0493	-0.0269	-0.0354	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL4	-0.0331	0.0020	-0.0503	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL5	1.1105	-2.1447	-1.4452	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL6	-0.4745	-0.1063	-0.1648	0.0000	0.0000	0.0000	0.0000	0.0000
66	Selfweight	0.5278	0.2508	-0.5129	0.0000	0.0000	0.0000	0.0000	0.0000
66	SuperDC	2.5745	-1.3714	-4.1013	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL1	0.0366	0.0008	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL2	-0.0235	-0.0126	-0.0253	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL3	0.0598	-0.0066	-0.0215	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL4	-0.0357	-0.0208	-0.0552	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL5	1.5237	-0.2472	-0.6325	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL6	-0.6072	-0.0769	-0.2438	0.0000	0.0000	0.0000	0.0000	0.0000
67	Selfweight	0.6232	0.1749	0.5228	0.0000	0.0000	0.0000	0.0000	0.0000
67	SuperDC	2.8577	-2.2117	4.8954	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL1	0.0435	0.0044	-0.0065	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL2	-0.0053	0.0019	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL3	0.1069	0.0164	-0.0388	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL4	0.0291	0.0133	-0.0565	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL5	1.6064	-0.5020	1.1254	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL6	-0.3785	0.0154	-0.1424	0.0000	0.0000	0.0000	0.0000	0.0000
68	Selfweight	0.7040	-1.3428	0.9774	0.0000	0.0000	0.0000	0.0000	0.0000
68	SuperDC	2.6683	-10.6520	7.1580	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL1	0.0256	0.0233	-0.0054	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL2	-0.0031	0.0272	-0.0230	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL3	0.0616	0.0859	-0.0384	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL4	0.0149	0.0798	-0.0585	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL5	1.1403	-1.6420	1.7483	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate		Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)		In-Plane Shear Fxy (kips/ft)		Moment Mxx (kips-ft/ft)		Moment Myy (kips-ft/ft)		Torsion Mxy (kips-ft/ft)		Shear Qx (kips/ft)		Shear Qy (kips/ft)	
68	LL6	-0.2375	0.0512	-0.1816	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
69	Selfweight	0.1676	-1.7191	-0.0141	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
69	SuperDC	-0.5637	-13.2365	-1.8375	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
69	LL1	0.0147	0.0135	0.0203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
69	LL2	0.0014	0.0243	0.0066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
69	LL3	0.0393	0.0592	0.0572	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
69	LL4	0.0170	0.0664	0.0306	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
69	LL5	0.3087	-1.6614	0.2898	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
69	LL6	-0.0984	0.1137	-0.1162	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
70	Selfweight	-0.1230	-1.4003	0.5083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
70	SuperDC	-0.8229	-13.3900	1.9474	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
70	LL1	0.0094	-0.0208	0.0177	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
70	LL2	0.0061	-0.0033	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
70	LL3	0.0302	-0.0550	0.0488	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
70	LL4	0.0218	-0.0237	0.0246	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
70	LL5	-0.1795	-0.8500	0.3434	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
70	LL6	-0.0209	0.1486	-0.1120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
71	Selfweight	0.4959	-1.8547	0.2416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
71	SuperDC	4.1709	-18.2870	0.3042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
71	LL1	0.0083	-0.0295	0.0048	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
71	LL2	0.0023	-0.0083	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
71	LL3	0.0232	-0.0815	0.0108	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
71	LL4	0.0121	-0.0414	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
71	LL5	0.2127	-0.9471	0.2543	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
71	LL6	-0.0475	0.1805	-0.0521	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
72	Selfweight	0.3417	-1.1842	-0.2790	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
72	SuperDC	2.9824	-14.1749	-2.9250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
72	LL1	0.0065	-0.0208	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
72	LL2	0.0023	-0.0071	-0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
72	LL3	0.0186	-0.0591	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
72	LL4	0.0105	-0.0326	-0.0043	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
72	LL5	0.1342	-0.5949	-0.0791	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
72	LL6	-0.0335	0.1113	0.0085	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
73	Selfweight	0.0450	-0.9363	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
73	SuperDC	0.9375	-15.5115	0.1270	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
73	LL1	0.0853	-1.4760	-0.1141	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
73	LL2	0.0511	-0.9352	-0.0661	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
73	LL3	0.2786	-4.6283	-0.0237	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
73	LL4	0.2060	-3.4346	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
73	LL5	0.2043	-3.4047	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
73	LL6	-0.0051	0.0845	0.0192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
74	Selfweight	0.1127	-1.0823	-0.0461	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
74	SuperDC	2.7718	-15.9817	0.7184	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
74	LL1	0.2442	-1.7301	-0.2736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
74	LL2	0.1253	-1.1552	-0.1453	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
74	LL3	0.8251	-4.8498	0.0425	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
74	LL4	0.6019	-3.5946	0.0973	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
74	LL5	0.5965	-3.5553	0.1168	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
74	LL6	-0.0179	0.1048	0.0531	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
75	Selfweight	0.0660	-1.1601	-0.2151	0.0000	0.0000	0.0000	0.0000	0.0000
75	SuperDC	1.6931	-14.7829	1.4112	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL1	0.1316	-1.7802	-0.5802	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL2	0.0401	-1.2787	-0.3236	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL3	0.5143	-4.5535	0.0761	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL4	0.3629	-3.3895	0.1848	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL5	0.3560	-3.3453	0.2231	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL6	-0.0200	0.1080	0.1038	0.0000	0.0000	0.0000	0.0000	0.0000
76	Selfweight	0.1592	-1.2941	-0.3792	0.0000	0.0000	0.0000	0.0000	0.0000
76	SuperDC	0.0171	-11.3558	0.5276	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL1	0.0847	-1.7631	-1.3557	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL2	0.0647	-1.4993	-0.9647	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL3	0.0801	-3.6082	-0.4467	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL4	0.0409	-2.7485	-0.1735	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL5	0.0267	-2.7042	-0.1075	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL6	-0.0303	0.0855	0.1663	0.0000	0.0000	0.0000	0.0000	0.0000
77	Selfweight	0.1870	-0.8864	-0.8515	0.0000	0.0000	0.0000	0.0000	0.0000
77	SuperDC	-0.3574	-7.6913	-6.6553	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL1	0.3139	-1.7459	-2.8553	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL2	0.2398	-1.5878	-2.3791	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL3	0.0724	-2.5469	-2.8071	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL4	0.0103	-1.9813	-2.0237	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL5	-0.0163	-1.9530	-1.9262	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL6	-0.0571	0.0449	0.2118	0.0000	0.0000	0.0000	0.0000	0.0000
78	Selfweight	-0.0509	-0.0255	-0.4647	0.0000	0.0000	0.0000	0.0000	0.0000
78	SuperDC	0.4230	-6.0518	-5.4377	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL1	0.8829	-2.1964	-1.8775	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL2	0.5988	-1.8065	-1.6506	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL3	0.5237	-2.0791	-2.3391	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL4	0.2747	-1.5896	-1.6889	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL5	0.2292	-1.5960	-1.5754	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL6	-0.1195	-0.0047	0.2349	0.0000	0.0000	0.0000	0.0000	0.0000
79	Selfweight	-0.0831	0.0316	0.5145	0.0000	0.0000	0.0000	0.0000	0.0000
79	SuperDC	-0.0635	-5.1116	4.8993	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL1	0.8093	-1.9440	1.7223	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL2	0.4114	-1.5499	1.3630	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL3	0.3345	-1.6163	1.1709	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL4	0.1072	-1.2642	1.0096	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL5	0.0778	-1.2953	1.1139	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL6	-0.1038	-0.0659	0.2305	0.0000	0.0000	0.0000	0.0000	0.0000
80	Selfweight	0.1221	-0.9241	1.0379	0.0000	0.0000	0.0000	0.0000	0.0000
80	SuperDC	-0.6998	-7.5442	6.3015	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL1	0.2431	-1.3602	2.7484	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL2	0.0029	-1.6522	2.0654	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL3	-0.0169	-2.1297	1.9498	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL4	-0.1140	-1.8494	1.5038	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL5	-0.1444	-1.8141	1.5824	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL6	-0.0840	-0.0601	0.1397	0.0000	0.0000	0.0000	0.0000	0.0000
81	Selfweight	0.1759	-1.6061	0.4261	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
81	SuperDC	1.2198	-14.1741	-0.3733	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL1	0.1577	-1.5956	1.3180	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL2	0.2101	-2.8070	0.4270	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL3	0.4690	-4.2611	0.0990	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL4	0.3398	-3.6634	-0.1674	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL5	0.2997	-3.5215	-0.0076	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL6	-0.0651	0.0252	0.1105	0.0000	0.0000	0.0000	0.0000	0.0000
82	Selfweight	0.0737	-1.6217	0.0935	0.0000	0.0000	0.0000	0.0000	0.0000
82	SuperDC	2.4153	-17.2813	-0.5069	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL1	0.1132	-1.5979	0.7993	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL2	0.4119	-3.2833	-0.0655	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL3	0.9452	-5.1900	0.0910	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL4	0.7255	-4.4658	-0.3149	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL5	0.6384	-4.3300	-0.0525	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL6	-0.1243	-0.0126	0.1724	0.0000	0.0000	0.0000	0.0000	0.0000
83	Selfweight	0.2477	-1.6584	-0.2185	0.0000	0.0000	0.0000	0.0000	0.0000
83	SuperDC	2.8278	-16.3544	-0.3239	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL1	0.1062	-1.4182	0.6709	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL2	0.4327	-3.0339	-0.3692	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL3	0.7711	-4.6049	0.4847	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL4	0.6931	-4.0947	-0.2706	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL5	0.6622	-4.0154	0.0098	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL6	0.0131	-0.1843	0.1306	0.0000	0.0000	0.0000	0.0000	0.0000
84	Selfweight	-0.0062	-0.7889	-0.7950	0.0000	0.0000	0.0000	0.0000	0.0000
84	SuperDC	-0.7293	-7.8182	-4.3634	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL1	-0.1856	-0.6203	0.2769	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL2	-0.0485	-1.4583	-1.5025	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL3	-0.0996	-1.8803	0.3550	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL4	-0.0176	-1.8580	-1.0829	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL5	-0.2072	-1.8594	-0.8074	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL6	-0.1211	-0.1911	-0.1934	0.0000	0.0000	0.0000	0.0000	0.0000
85	Selfweight	-0.2694	0.0111	0.1479	0.0000	0.0000	0.0000	0.0000	0.0000
85	SuperDC	-1.1268	-4.6767	-1.4614	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL1	-0.3220	-0.0062	0.2058	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL2	0.2022	-1.3572	-0.6457	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL3	-0.3727	-0.2342	0.6636	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL4	0.0241	-1.0715	-0.3323	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL5	-0.2288	-1.1707	-0.0633	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL6	-0.3097	0.0258	-0.2760	0.0000	0.0000	0.0000	0.0000	0.0000
86	Selfweight	0.0308	-0.9326	0.8934	0.0000	0.0000	0.0000	0.0000	0.0000
86	SuperDC	0.8631	-10.9499	7.7144	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL1	-0.0935	-0.1508	0.0870	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL2	0.6669	-2.4515	2.3284	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL3	0.2126	-0.9695	1.1888	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL4	0.5510	-2.2269	2.0873	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL5	0.3427	-2.4379	2.1671	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL6	-0.3873	-0.4536	-0.4019	0.0000	0.0000	0.0000	0.0000	0.0000
87	Selfweight	0.0707	-1.4619	0.1181	0.0000	0.0000	0.0000	0.0000	0.0000
87	SuperDC	-0.6945	-10.9478	0.7920	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
87	LL1	-0.0135	-0.0658	-0.1653	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL2	0.0247	-1.5294	1.7232	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL3	0.0721	-0.6808	0.4750	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL4	0.0397	-1.6444	1.2310	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL5	-0.1294	-1.8688	1.0283	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL6	-0.2174	-1.3634	-1.4154	0.0000	0.0000	0.0000	0.0000	0.0000
88	Selfweight	0.0140	-1.4605	-0.0484	0.0000	0.0000	0.0000	0.0000	0.0000
88	SuperDC	0.4366	-13.7965	-2.7157	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL1	-0.0620	0.0477	-0.0940	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL2	-0.3258	-0.8100	0.9410	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL3	-0.1579	-0.2742	0.2948	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL4	-0.1978	-1.2333	0.5334	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL5	-0.1732	-1.8640	0.2987	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL6	0.3931	-2.6121	-1.7240	0.0000	0.0000	0.0000	0.0000	0.0000
89	Selfweight	0.0630	-1.0253	-0.8122	0.0000	0.0000	0.0000	0.0000	0.0000
89	SuperDC	1.7015	-12.3529	-4.3392	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL1	-0.0445	-0.0689	-0.1239	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL2	-0.2489	-0.5383	0.1421	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL3	-0.1282	-0.3218	-0.1226	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL4	-0.0639	-0.9895	0.0164	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL5	-0.0767	-1.6812	-0.8632	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL6	0.6888	-2.3291	-1.2567	0.0000	0.0000	0.0000	0.0000	0.0000
90	Selfweight	-0.2958	0.0149	-0.4717	0.0000	0.0000	0.0000	0.0000	0.0000
90	SuperDC	-2.5547	-2.6481	-1.4054	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL1	-0.0832	-0.0804	-0.2292	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL2	-0.3892	-0.0743	-0.0240	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL3	-0.2454	-0.1421	-0.3684	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL4	-0.3395	-0.2237	0.1162	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL5	-0.7476	-0.3071	-1.0733	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL6	0.0283	-0.4977	-0.2582	0.0000	0.0000	0.0000	0.0000	0.0000
91	Selfweight	-0.2958	0.0149	0.4717	0.0000	0.0000	0.0000	0.0000	0.0000
91	SuperDC	-2.5538	-2.6483	1.4151	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL1	-0.1063	-0.0130	-0.2307	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL2	-0.3490	-0.0413	0.0665	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL3	-0.2567	-0.0278	-0.3396	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL4	-0.3338	-0.0306	0.2544	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL5	-0.6959	-0.5977	-0.5791	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL6	0.0283	-0.4977	0.2582	0.0000	0.0000	0.0000	0.0000	0.0000
92	Selfweight	0.0630	-1.0253	0.8122	0.0000	0.0000	0.0000	0.0000	0.0000
92	SuperDC	1.6988	-12.3497	4.3474	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL1	-0.0479	0.0516	-0.2079	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL2	-0.1274	-0.1517	-0.0780	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL3	-0.0914	0.0388	-0.3497	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL4	-0.0910	-0.1705	0.0675	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL5	0.2233	-2.5935	0.2547	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL6	0.6888	-2.3291	1.2567	0.0000	0.0000	0.0000	0.0000	0.0000
93	Selfweight	0.0140	-1.4605	0.0484	0.0000	0.0000	0.0000	0.0000	0.0000
93	SuperDC	0.4299	-13.7952	2.7295	0.0000	0.0000	0.0000	0.0000	0.0000
93	LL1	-0.0139	0.0867	-0.1394	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
93	LL2	-0.0675	-0.0019	-0.2665	0.0000	0.0000	0.0000	0.0000	0.0000
93	LL3	-0.0241	0.1429	-0.2931	0.0000	0.0000	0.0000	0.0000	0.0000
93	LL4	-0.0270	-0.0467	-0.1870	0.0000	0.0000	0.0000	0.0000	0.0000
93	LL5	-0.0535	-2.9220	0.1556	0.0000	0.0000	0.0000	0.0000	0.0000
93	LL6	0.3931	-2.6121	1.7240	0.0000	0.0000	0.0000	0.0000	0.0000
94	Selfweight	0.0707	-1.4619	-0.1181	0.0000	0.0000	0.0000	0.0000	0.0000
94	SuperDC	-0.6956	-10.9706	-0.7812	0.0000	0.0000	0.0000	0.0000	0.0000
94	LL1	0.0101	0.0648	-0.0773	0.0000	0.0000	0.0000	0.0000	0.0000
94	LL2	-0.0712	0.1126	-0.1503	0.0000	0.0000	0.0000	0.0000	0.0000
94	LL3	0.0170	0.1220	-0.1567	0.0000	0.0000	0.0000	0.0000	0.0000
94	LL4	-0.0478	0.0542	-0.0915	0.0000	0.0000	0.0000	0.0000	0.0000
94	LL5	-0.1495	-2.5313	-0.6375	0.0000	0.0000	0.0000	0.0000	0.0000
94	LL6	-0.2174	-1.3634	1.4154	0.0000	0.0000	0.0000	0.0000	0.0000
95	Selfweight	0.0308	-0.9326	-0.8934	0.0000	0.0000	0.0000	0.0000	0.0000
95	SuperDC	0.8618	-10.9749	-7.7411	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL1	0.0211	0.0120	-0.0436	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL2	-0.0585	-0.0315	-0.1321	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL3	0.0366	-0.0162	-0.1293	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL4	-0.0434	-0.0839	-0.1478	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL5	0.3489	-2.6612	-2.2125	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL6	-0.3873	-0.4536	0.4019	0.0000	0.0000	0.0000	0.0000	0.0000
96	Selfweight	-0.2694	0.0111	-0.1479	0.0000	0.0000	0.0000	0.0000	0.0000
96	SuperDC	-1.1409	-4.6734	1.4226	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL1	0.0188	-0.0069	-0.0565	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL2	-0.0817	-0.0607	-0.2317	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL3	0.0188	-0.0331	-0.1966	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL4	-0.0795	-0.0680	-0.2738	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL5	-0.1275	-1.0949	0.1136	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL6	-0.3097	0.0258	0.2760	0.0000	0.0000	0.0000	0.0000	0.0000
97	Selfweight	-0.0062	-0.7889	0.7950	0.0000	0.0000	0.0000	0.0000	0.0000
97	SuperDC	-0.7428	-7.8306	4.3319	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL1	0.0056	0.0264	-0.0433	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL2	-0.0846	0.0445	-0.2127	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL3	-0.0070	0.0769	-0.1587	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL4	-0.0800	0.0658	-0.2441	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL5	-0.1194	-1.8231	0.9660	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL6	-0.1211	-0.1911	0.1934	0.0000	0.0000	0.0000	0.0000	0.0000
98	Selfweight	0.2477	-1.6584	0.2185	0.0000	0.0000	0.0000	0.0000	0.0000
98	SuperDC	2.8208	-16.4107	0.2686	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL1	0.0030	0.0323	-0.0038	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL2	-0.0179	0.0938	-0.1416	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL3	0.0085	0.1042	-0.0470	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL4	-0.0069	0.1201	-0.1483	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL5	0.6685	-4.0969	0.1370	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL6	0.0131	-0.1843	-0.1306	0.0000	0.0000	0.0000	0.0000	0.0000
99	Selfweight	0.0737	-1.6217	-0.0935	0.0000	0.0000	0.0000	0.0000	0.0000
99	SuperDC	2.4165	-17.3573	0.4251	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL1	0.0120	0.0131	0.0062	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL2	-0.0226	0.0870	-0.1177	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
99	LL3	0.0244	0.0558	-0.0146	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL4	-0.0130	0.1000	-0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL5	0.6907	-4.4529	0.1539	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL6	-0.1243	-0.0126	-0.1724	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	Selfweight	0.1759	-1.6061	-0.4261	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	SuperDC	1.2256	-14.2552	0.2322	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL1	0.0137	-0.0022	0.0042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL2	-0.0043	0.0754	-0.0707	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL3	0.0385	0.0070	-0.0079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL4	0.0153	0.0637	-0.0686	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL5	0.2871	-3.5479	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL6	-0.0651	0.0252	-0.1105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
101	Selfweight	0.1221	-0.9241	-1.0379	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
101	SuperDC	-0.6712	-7.6223	-6.5310	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL1	0.0139	-0.0055	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL2	0.0044	0.0265	-0.0242	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL3	0.0388	-0.0197	-0.0277	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL4	0.0202	0.0020	-0.0488	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL5	-0.1491	-1.6836	-1.3860	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL6	-0.0840	-0.0601	-0.1397	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
102	Selfweight	-0.0831	0.0316	-0.5145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
102	SuperDC	0.0331	-5.2603	-5.0363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL1	0.0145	0.0004	-0.0031	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL2	0.0085	-0.0069	-0.0241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL3	0.0395	-0.0060	-0.0359	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL4	0.0220	-0.0151	-0.0623	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL5	0.1456	-1.0993	-0.9715	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL6	-0.1038	-0.0659	-0.2305	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	Selfweight	-0.0509	-0.0255	0.4647	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	SuperDC	0.5417	-6.2119	5.5642	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL1	0.0142	0.0062	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL2	0.0017	0.0008	-0.0287	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL3	0.0358	0.0202	-0.0376	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL4	0.0130	0.0130	-0.0673	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL5	0.4128	-1.3417	1.3322	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL6	-0.1195	-0.0047	-0.2349	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	Selfweight	0.1870	-0.8864	0.8515	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	SuperDC	-0.2901	-7.7256	6.9058	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL1	0.0067	0.0147	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL2	-0.0020	0.0175	-0.0192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL3	0.0164	0.0556	-0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL4	0.0036	0.0527	-0.0405	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL5	0.1932	-1.2730	1.8496	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL6	-0.0571	0.0449	-0.2118	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	Selfweight	0.1592	-1.2941	0.3792	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	SuperDC	0.0298	-11.2320	-0.2913	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL1	0.0023	0.0068	0.0196	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL2	-0.0018	0.0154	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL3	0.0046	0.0329	0.0490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
105	LL4	-0.0013	0.0404	0.0163	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL5	0.0545	-1.1429	0.6893	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL6	-0.0303	0.0855	-0.1663	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	Selfweight	0.0660	-1.1601	0.2151	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	SuperDC	1.6401	-14.4932	-1.2778	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL1	0.0060	-0.0111	0.0178	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL2	0.0028	0.0013	0.0054	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL3	0.0183	-0.0263	0.0499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL4	0.0119	-0.0058	0.0263	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL5	-0.0071	-0.8404	0.1909	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL6	-0.0200	0.1080	-0.1038	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	Selfweight	0.1127	-1.0823	0.0461	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	SuperDC	2.6957	-15.6245	-0.6548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL1	0.0054	-0.0171	0.0091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL2	0.0030	-0.0045	0.0028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL3	0.0167	-0.0473	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL4	0.0112	-0.0239	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL5	0.0483	-0.6973	0.0810	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL6	-0.0179	0.1048	-0.0531	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	Selfweight	0.0450	-0.9363	-0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	SuperDC	0.9132	-15.1264	-0.1062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL1	0.0013	-0.0176	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL2	0.0006	-0.0070	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL3	0.0038	-0.0513	0.0089	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL4	0.0024	-0.0301	0.0045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL5	0.0263	-0.5219	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL6	-0.0051	0.0845	-0.0192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	Selfweight	-0.0012	-0.6422	-0.0268	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	SuperDC	2.5089	-14.8086	-2.5043	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL1	0.1396	-1.2062	-0.2834	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL2	0.0946	-0.7831	-0.1702	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL3	0.7004	-4.3183	-0.7713	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL4	0.5377	-3.2441	-0.5610	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL5	0.5387	-3.2277	-0.5532	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL6	0.0020	0.0474	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	Selfweight	-0.0027	-0.7032	-0.0804	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	SuperDC	4.2163	-19.2747	-0.4135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL1	0.1991	-1.6783	-0.3665	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL2	0.1358	-1.1608	-0.1967	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL3	1.1619	-5.6461	-0.2838	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL4	0.8971	-4.2600	-0.1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL5	0.9003	-4.2373	-0.1249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL6	0.0076	0.0597	0.0558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	Selfweight	-0.0144	-0.7704	-0.1801	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	SuperDC	3.0244	-16.3366	3.4292	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL1	0.0741	-1.5434	-0.3341	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL2	0.0649	-1.1191	-0.1581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL3	0.7890	-4.8347	0.6844	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL4	0.6283	-3.6534	0.6368	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
111	LL5	0.6368	-3.6280	0.6726	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL6	0.0220	0.0605	0.0952	0.0000	0.0000	0.0000	0.0000	0.0000
112	Selfweight	-0.0662	-0.8298	-0.4293	0.0000	0.0000	0.0000	0.0000	0.0000
112	SuperDC	-0.6586	-8.2645	1.9787	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL1	-0.7285	-0.9628	-1.0822	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL2	-0.5240	-0.7967	-0.7845	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL3	-0.4378	-2.5362	0.0159	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL4	-0.2669	-1.9310	0.1614	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL5	-0.2445	-1.9049	0.2254	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL6	0.0601	0.0514	0.1565	0.0000	0.0000	0.0000	0.0000	0.0000
113	Selfweight	-0.2850	-0.5799	-0.6895	0.0000	0.0000	0.0000	0.0000	0.0000
113	SuperDC	-2.9564	-4.4891	-6.6459	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL1	-1.5347	-1.1997	-2.8331	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL2	-1.1667	-1.0641	-2.3205	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL3	-1.3255	-1.5207	-2.7913	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL4	-0.9069	-1.1769	-1.9990	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL5	-0.8612	-1.1618	-1.9044	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL6	0.1133	0.0256	0.2101	0.0000	0.0000	0.0000	0.0000	0.0000
114	Selfweight	-0.5678	-0.1375	-0.3575	0.0000	0.0000	0.0000	0.0000	0.0000
114	SuperDC	-0.6916	-10.3105	-7.0062	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL1	-1.0602	-3.7394	-2.4465	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL2	-0.8492	-3.0862	-2.0684	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL3	-0.7683	-3.5315	-2.8604	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL4	-0.4631	-2.6994	-2.0713	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL5	-0.3802	-2.7056	-1.9678	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL6	0.1843	-0.0070	0.2250	0.0000	0.0000	0.0000	0.0000	0.0000
115	Selfweight	-0.5588	-0.1073	0.4366	0.0000	0.0000	0.0000	0.0000	0.0000
115	SuperDC	-1.1328	-9.2356	6.6751	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL1	-1.1295	-3.4303	2.2734	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL2	-0.9908	-2.7823	1.8829	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL3	-1.0912	-3.0758	1.8472	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL4	-0.6858	-2.3683	1.5162	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL5	-0.5561	-2.3866	1.6027	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL6	0.2731	-0.0411	0.1965	0.0000	0.0000	0.0000	0.0000	0.0000
116	Selfweight	-0.1959	-0.6086	0.8610	0.0000	0.0000	0.0000	0.0000	0.0000
116	SuperDC	-3.0849	-4.2942	5.5966	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL1	-1.4668	-0.8263	2.5988	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL2	-1.4528	-0.9772	1.9191	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL3	-1.9221	-1.2348	1.7780	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL4	-1.2976	-1.0656	1.3491	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL5	-1.1246	-1.0415	1.4256	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL6	0.3603	-0.0260	0.1236	0.0000	0.0000	0.0000	0.0000	0.0000
117	Selfweight	0.1033	-1.0138	0.4417	0.0000	0.0000	0.0000	0.0000	0.0000
117	SuperDC	1.4161	-12.5579	-2.9795	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL1	-0.3946	-0.9857	0.9881	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL2	-0.4012	-2.1864	-0.0709	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL3	-0.4709	-3.8059	-0.7497	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL4	-0.1817	-3.2025	-0.8367	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL5	0.0264	-3.1262	-0.6822	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
117	LL6	0.3983	0.0042	0.1098	0.0000	0.0000	0.0000	0.0000	0.0000
118	Selfweight	0.1735	-1.0609	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000
118	SuperDC	5.6859	-19.9795	-1.2316	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL1	0.3587	-1.5484	0.6858	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL2	0.4717	-3.3881	-0.1664	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL3	0.8534	-6.1919	-0.0998	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL4	0.8573	-5.0977	-0.4522	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL5	1.1161	-5.0131	-0.2265	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL6	0.4462	-0.0143	0.1180	0.0000	0.0000	0.0000	0.0000	0.0000
119	Selfweight	0.1556	-1.0242	-0.2681	0.0000	0.0000	0.0000	0.0000	0.0000
119	SuperDC	3.3460	-16.3528	1.5980	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL1	0.2808	-1.3178	0.7518	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL2	-0.0369	-2.7018	0.0236	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL3	0.3586	-5.0616	1.0329	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL4	0.2601	-4.1222	0.2504	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL5	0.5442	-4.0713	0.5223	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL6	0.4639	-0.0956	0.0737	0.0000	0.0000	0.0000	0.0000	0.0000
120	Selfweight	-0.1172	-0.5325	-0.5938	0.0000	0.0000	0.0000	0.0000	0.0000
120	SuperDC	-2.2689	-5.9347	-2.0264	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL1	0.1816	-0.4736	0.3827	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL2	-1.2427	-0.9967	-1.0851	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL3	-0.7021	-1.6906	0.8085	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL4	-1.1457	-1.4524	-0.5649	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL5	-0.7755	-1.4536	-0.2732	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL6	0.4116	-0.0864	-0.1097	0.0000	0.0000	0.0000	0.0000	0.0000
121	Selfweight	-0.3425	-0.1357	0.1173	0.0000	0.0000	0.0000	0.0000	0.0000
121	SuperDC	-1.7686	-8.0831	-3.8644	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL1	0.2826	0.0168	0.1118	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL2	-1.0267	-2.3504	-1.2345	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL3	-0.3945	-0.4335	0.1991	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL4	-0.9576	-1.8925	-0.9367	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL5	-0.4736	-1.9571	-0.6987	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL6	0.1939	-0.0083	-0.2201	0.0000	0.0000	0.0000	0.0000	0.0000
122	Selfweight	-0.0294	-0.5963	0.6909	0.0000	0.0000	0.0000	0.0000	0.0000
122	SuperDC	1.1733	-11.5967	8.6286	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL1	0.5013	-0.0698	0.0209	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL2	-0.3311	-3.0411	2.5389	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL3	0.5968	-0.9702	1.1094	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL4	-0.1184	-2.6353	2.2475	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL5	0.4576	-2.7364	2.3098	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL6	-0.0563	-0.1729	-0.3112	0.0000	0.0000	0.0000	0.0000	0.0000
123	Selfweight	0.2029	-0.9466	0.2474	0.0000	0.0000	0.0000	0.0000	0.0000
123	SuperDC	-2.1234	-6.3611	1.7199	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL1	0.4816	-0.0357	-0.1104	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL2	-0.5533	-0.8309	1.8800	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL3	0.5465	-0.3826	0.6411	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL4	-0.4494	-0.9191	1.4090	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL5	0.0762	-1.0597	1.2432	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL6	-0.6867	-0.8330	-1.3659	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
124	Selfweight	0.2225	-0.9437	-0.1704	0.0000	0.0000	0.0000	0.0000	0.0000
124	SuperDC	2.0567	-12.4804	-6.2049	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL1	0.4473	0.0216	-0.1011	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL2	0.0763	-0.3773	0.6627	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL3	0.7497	-0.1291	0.1818	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL4	0.2225	-0.8956	0.1762	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL5	0.7847	-1.3940	-0.2438	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL6	-0.3184	-2.6573	-2.2636	0.0000	0.0000	0.0000	0.0000	0.0000
125	Selfweight	0.0262	-0.6459	-0.6382	0.0000	0.0000	0.0000	0.0000	0.0000
125	SuperDC	1.9471	-13.9457	-2.1082	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL1	0.4022	-0.0331	-0.1101	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL2	0.4632	-0.3557	0.1672	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL3	0.8079	-0.1705	-0.0829	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL4	0.4978	-0.9886	0.1095	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL5	0.8813	-1.4849	-0.4969	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL6	-0.7072	-2.9465	-0.7976	0.0000	0.0000	0.0000	0.0000	0.0000
126	Selfweight	-0.3018	-0.1335	-0.3319	0.0000	0.0000	0.0000	0.0000	0.0000
126	SuperDC	-3.9009	-3.3114	1.1895	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL1	0.3322	-0.0494	-0.1865	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL2	0.4238	-0.0833	0.0213	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL3	0.7010	-0.0944	-0.2980	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL4	0.3466	-0.2800	0.2328	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL5	-0.2365	-0.2801	-0.6271	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL6	-2.0159	-0.6750	0.2353	0.0000	0.0000	0.0000	0.0000	0.0000
127	Selfweight	-0.3018	-0.1335	0.3319	0.0000	0.0000	0.0000	0.0000	0.0000
127	SuperDC	-3.8992	-3.3111	-1.1810	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL1	0.2503	-0.0117	-0.2175	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL2	0.4677	-0.0233	-0.0227	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL3	0.5950	-0.0237	-0.3502	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL4	0.3248	0.0071	0.1300	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL5	-0.2190	-0.8115	-1.0202	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL6	-2.0159	-0.6750	-0.2353	0.0000	0.0000	0.0000	0.0000	0.0000
128	Selfweight	0.0262	-0.6459	0.6382	0.0000	0.0000	0.0000	0.0000	0.0000
128	SuperDC	1.9510	-13.9436	2.1177	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL1	0.1743	0.0296	-0.2044	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL2	0.5315	-0.0689	-0.1272	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL3	0.4933	0.0286	-0.3581	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL4	0.5558	-0.0648	-0.0188	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL5	0.4981	-3.0530	-0.1180	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL6	-0.7072	-2.9465	0.7976	0.0000	0.0000	0.0000	0.0000	0.0000
129	Selfweight	0.2225	-0.9437	0.1704	0.0000	0.0000	0.0000	0.0000	0.0000
129	SuperDC	2.0633	-12.4808	6.2176	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL1	0.1182	0.0487	-0.1344	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL2	0.4936	-0.0001	-0.2167	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL3	0.3953	0.0799	-0.2702	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL4	0.5483	-0.0299	-0.1229	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL5	0.3199	-2.6751	0.9136	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL6	-0.3184	-2.6573	2.2636	0.0000	0.0000	0.0000	0.0000	0.0000
130	Selfweight	0.2029	-0.9466	-0.2474	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
130	SuperDC	-2.1112	-6.3735	-1.7142	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL1	0.0848	0.0381	-0.0761	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL2	0.4136	0.0590	-0.1524	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL3	0.3210	0.0700	-0.1595	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL4	0.4947	0.0273	-0.1055	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL5	-0.7678	-1.4654	-0.8511	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL6	-0.6867	-0.8330	1.3659	0.0000	0.0000	0.0000	0.0000	0.0000
131	Selfweight	-0.0294	-0.5963	-0.6909	0.0000	0.0000	0.0000	0.0000	0.0000
131	SuperDC	1.1803	-11.6096	-8.6494	0.0000	0.0000	0.0000	0.0000	0.0000
131	LL1	0.0651	0.0079	-0.0419	0.0000	0.0000	0.0000	0.0000	0.0000
131	LL2	0.3696	-0.0104	-0.1218	0.0000	0.0000	0.0000	0.0000	0.0000
131	LL3	0.2737	-0.0044	-0.1190	0.0000	0.0000	0.0000	0.0000	0.0000
131	LL4	0.4532	-0.0397	-0.1288	0.0000	0.0000	0.0000	0.0000	0.0000
131	LL5	-0.1015	-2.8641	-2.4325	0.0000	0.0000	0.0000	0.0000	0.0000
131	LL6	-0.0563	-0.1729	0.3112	0.0000	0.0000	0.0000	0.0000	0.0000
132	Selfweight	-0.3425	-0.1357	-0.1173	0.0000	0.0000	0.0000	0.0000	0.0000
132	SuperDC	-1.7827	-8.0814	3.8323	0.0000	0.0000	0.0000	0.0000	0.0000
132	LL1	0.0362	-0.0035	-0.0472	0.0000	0.0000	0.0000	0.0000	0.0000
132	LL2	0.2656	-0.0365	-0.1972	0.0000	0.0000	0.0000	0.0000	0.0000
132	LL3	0.1797	-0.0190	-0.1672	0.0000	0.0000	0.0000	0.0000	0.0000
132	LL4	0.3325	-0.0413	-0.2360	0.0000	0.0000	0.0000	0.0000	0.0000
132	LL5	-0.9821	-1.9678	0.7510	0.0000	0.0000	0.0000	0.0000	0.0000
132	LL6	0.1939	-0.0083	0.2201	0.0000	0.0000	0.0000	0.0000	0.0000
133	Selfweight	-0.1172	-0.5325	0.5938	0.0000	0.0000	0.0000	0.0000	0.0000
133	SuperDC	-2.3048	-5.9424	1.9960	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL1	0.0038	0.0133	-0.0362	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL2	0.1472	0.0210	-0.2054	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL3	0.0742	0.0393	-0.1416	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL4	0.1958	0.0330	-0.2347	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL5	-1.2458	-1.4256	0.4279	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL6	0.4116	-0.0864	0.1097	0.0000	0.0000	0.0000	0.0000	0.0000
134	Selfweight	0.1556	-1.0242	0.2681	0.0000	0.0000	0.0000	0.0000	0.0000
134	SuperDC	3.2989	-16.3885	-1.6550	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL1	-0.0089	0.0171	-0.0083	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL2	0.0817	0.0541	-0.1471	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL3	0.0272	0.0562	-0.0580	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL4	0.1217	0.0681	-0.1553	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL5	0.1341	-4.1081	-0.3796	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL6	0.4639	-0.0956	-0.0737	0.0000	0.0000	0.0000	0.0000	0.0000
135	Selfweight	0.1735	-1.0609	-0.0400	0.0000	0.0000	0.0000	0.0000	0.0000
135	SuperDC	5.6365	-20.0239	1.1558	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL1	-0.0077	0.0084	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL2	0.0709	0.0554	-0.1091	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL3	0.0279	0.0350	-0.0251	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL4	0.1124	0.0628	-0.1091	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL5	0.7072	-5.0787	0.3120	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL6	0.4462	-0.0143	-0.1180	0.0000	0.0000	0.0000	0.0000	0.0000
136	Selfweight	0.1033	-1.0138	-0.4417	0.0000	0.0000	0.0000	0.0000	0.0000
136	SuperDC	1.3168	-12.5871	2.8589	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
136	LL1	-0.0053	-0.0001	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL2	0.0512	0.0427	-0.0686	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL3	0.0282	0.0068	-0.0116	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL4	0.0933	0.0369	-0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL5	-0.3372	-3.1641	0.7476	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL6	0.3983	0.0042	-0.1098	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
137	Selfweight	-0.1959	-0.6086	-0.8610	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
137	SuperDC	-3.2630	-4.3455	-5.8201	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL1	-0.0058	-0.0034	-0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL2	0.0371	0.0159	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL3	0.0208	-0.0112	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL4	0.0744	0.0025	-0.0443	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL5	-1.4252	-0.9760	-1.2671	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL6	0.3603	-0.0260	-0.1236	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
138	Selfweight	-0.5588	-0.1073	-0.4366	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
138	SuperDC	-1.2872	-9.4942	-6.8578	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL1	-0.0074	0.0002	-0.0037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL2	0.0255	-0.0037	-0.0198	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL3	0.0053	-0.0039	-0.0339	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL4	0.0478	-0.0090	-0.0546	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL5	-0.8465	-2.0350	-1.4489	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL6	0.2731	-0.0411	-0.1965	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
139	Selfweight	-0.5678	-0.1375	0.3575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
139	SuperDC	-0.8422	-10.5908	7.1684	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL1	-0.0090	0.0044	-0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL2	0.0123	0.0002	-0.0235	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL3	-0.0103	0.0137	-0.0297	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL4	0.0197	0.0082	-0.0574	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL5	-0.6653	-2.3260	1.6201	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL6	0.1843	-0.0070	-0.2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
140	Selfweight	-0.2850	-0.5799	0.6895	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
140	SuperDC	-3.0993	-4.5403	6.8870	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL1	-0.0110	0.0079	0.0069	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL2	0.0013	0.0091	-0.0160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL3	-0.0255	0.0298	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL4	-0.0048	0.0282	-0.0311	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL5	-0.8484	-0.8405	1.7820	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL6	0.1133	0.0256	-0.2101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	Selfweight	-0.0662	-0.8298	0.4293	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	SuperDC	-0.7510	-8.1121	-1.7278	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL1	-0.0081	0.0032	0.0168	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL2	-0.0017	0.0085	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL3	-0.0213	0.0169	0.0404	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL4	-0.0093	0.0219	0.0102	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL5	-0.3681	-0.5879	0.5814	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL6	0.0601	0.0514	-0.1565	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	Selfweight	-0.0144	-0.7704	0.1801	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	SuperDC	2.9211	-15.9505	-3.2557	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL1	-0.0028	-0.0054	0.0156	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
142	LL2	-0.0004	0.0015	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL3	-0.0072	-0.0120	0.0431	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL4	-0.0028	-0.0009	0.0217	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL5	0.0364	-0.7222	0.0901	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL6	0.0220	0.0605	-0.0952	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	Selfweight	-0.0027	-0.7032	0.0804	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	SuperDC	4.0833	-18.7880	0.4461	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL1	-0.0004	-0.0094	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL2	0.0003	-0.0022	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL3	-0.0007	-0.0256	0.0315	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL4	0.0005	-0.0124	0.0179	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL5	0.0711	-0.7059	0.1042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL6	0.0076	0.0597	-0.0558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	Selfweight	-0.0012	-0.6422	0.0268	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	SuperDC	2.4330	-14.4139	2.4474	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL1	0.0001	-0.0107	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL2	0.0003	-0.0046	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL3	0.0006	-0.0315	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL4	0.0008	-0.0191	0.0081	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL5	0.0514	-0.4385	0.0912	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL6	0.0020	0.0474	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
145	Selfweight	-0.0107	-0.3582	-0.0144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
145	SuperDC	-0.7247	-11.4094	-5.8592	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL1	-0.0890	-0.8274	-0.4398	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL2	-0.0546	-0.5578	-0.2855	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL3	-0.2266	-3.2724	-1.6917	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL4	-0.1642	-2.4836	-1.2763	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL5	-0.1614	-2.4779	-1.2718	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL6	0.0075	0.0170	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
146	Selfweight	-0.0343	-0.3903	-0.0562	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
146	SuperDC	6.4144	-27.3617	-3.8241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL1	0.2887	-1.9350	-0.4320	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL2	0.2306	-1.3585	-0.2510	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL3	1.7474	-7.8167	-1.1843	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL4	1.3684	-5.9630	-0.8567	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL5	1.3768	-5.9532	-0.8433	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL6	0.0229	0.0258	0.0379	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
147	Selfweight	-0.0968	-0.4166	-0.1372	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
147	SuperDC	4.1012	-20.3992	7.3444	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
147	LL1	-0.1204	-1.6094	-0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
147	LL2	-0.0440	-1.1669	0.0369	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
147	LL3	0.9792	-5.8746	1.8559	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
147	LL4	0.8183	-4.4820	1.5040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
147	LL5	0.8394	-4.4715	1.5294	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
147	LL6	0.0566	0.0249	0.0677	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
148	Selfweight	-0.3060	-0.4360	-0.3303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
148	SuperDC	-1.6024	-4.2388	3.8622	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
148	LL1	-0.9576	-0.2979	-0.3557	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
148	LL2	-0.6134	-0.2359	-0.2264	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
148	LL3	-0.8863	-1.2487	0.7476	0.0000	0.0000	0.0000	0.0000	0.0000
148	LL4	-0.5299	-0.9525	0.6815	0.0000	0.0000	0.0000	0.0000	0.0000
148	LL5	-0.4752	-0.9420	0.7294	0.0000	0.0000	0.0000	0.0000	0.0000
148	LL6	0.1400	0.0206	0.1163	0.0000	0.0000	0.0000	0.0000	0.0000
149	Selfweight	-0.7154	-0.3350	-0.4881	0.0000	0.0000	0.0000	0.0000	0.0000
149	SuperDC	-3.2231	-0.2430	-6.1548	0.0000	0.0000	0.0000	0.0000	0.0000
149	LL1	-3.2775	-0.1955	-2.1358	0.0000	0.0000	0.0000	0.0000	0.0000
149	LL2	-2.5078	-0.1971	-1.7321	0.0000	0.0000	0.0000	0.0000	0.0000
149	LL3	-2.0675	-0.1327	-2.4090	0.0000	0.0000	0.0000	0.0000	0.0000
149	LL4	-1.3243	-0.1064	-1.7387	0.0000	0.0000	0.0000	0.0000	0.0000
149	LL5	-1.2093	-0.1005	-1.6689	0.0000	0.0000	0.0000	0.0000	0.0000
149	LL6	0.2788	0.0103	0.1564	0.0000	0.0000	0.0000	0.0000	0.0000
150	Selfweight	-1.0919	-0.1623	-0.2486	0.0000	0.0000	0.0000	0.0000	0.0000
150	SuperDC	-3.3652	-14.9703	-9.2404	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL1	-3.4071	-5.3377	-3.4020	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL2	-2.6264	-4.3978	-2.8193	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL3	-2.4767	-5.1082	-3.5282	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL4	-1.5445	-3.9006	-2.6023	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL5	-1.3537	-3.9040	-2.5279	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL6	0.4446	-0.0044	0.1658	0.0000	0.0000	0.0000	0.0000	0.0000
151	Selfweight	-1.0286	-0.1494	0.3140	0.0000	0.0000	0.0000	0.0000	0.0000
151	SuperDC	-3.0832	-13.8139	8.7286	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL1	-3.3881	-5.0171	3.1193	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL2	-2.6381	-4.1298	2.5857	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL3	-2.7674	-4.6974	2.6910	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL4	-1.6786	-3.5936	2.1322	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL5	-1.4062	-3.6015	2.1899	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL6	0.6225	-0.0172	0.1365	0.0000	0.0000	0.0000	0.0000	0.0000
152	Selfweight	-0.4785	-0.3463	0.6178	0.0000	0.0000	0.0000	0.0000	0.0000
152	SuperDC	-3.2622	0.4150	4.9434	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL1	-3.0127	0.1309	1.8135	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL2	-2.5147	0.0914	1.4642	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL3	-3.0665	0.2137	1.5649	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL4	-1.8772	0.1213	1.2001	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL5	-1.5246	0.1312	1.2548	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL6	0.7708	-0.0089	0.0888	0.0000	0.0000	0.0000	0.0000	0.0000
153	Selfweight	0.0479	-0.5106	0.3332	0.0000	0.0000	0.0000	0.0000	0.0000
153	SuperDC	0.0451	-10.2838	-6.7404	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL1	-0.4346	-0.6155	0.2039	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL2	-0.9537	-1.6089	-0.8639	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL3	-1.8714	-3.2058	-2.0046	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL4	-1.0855	-2.6072	-1.7677	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL5	-0.6335	-2.5741	-1.6553	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL6	0.8727	0.0023	0.0801	0.0000	0.0000	0.0000	0.0000	0.0000
154	Selfweight	0.2149	-0.5328	0.0287	0.0000	0.0000	0.0000	0.0000	0.0000
154	SuperDC	7.1919	-27.6546	-6.8018	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL1	0.2607	-1.9227	0.4051	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL2	0.1048	-4.4251	-0.9791	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL3	0.5401	-8.6447	-1.7791	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
154	LL4	0.6639	-6.9925	-1.8014	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL5	1.1989	-6.9585	-1.6347	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL6	0.9225	-0.0082	0.0782	0.0000	0.0000	0.0000	0.0000	0.0000
155	Selfweight	0.1509	-0.5124	-0.2087	0.0000	0.0000	0.0000	0.0000	0.0000
155	SuperDC	6.6941	-20.6013	7.7086	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL1	0.4883	-1.3697	0.9165	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL2	0.1781	-3.1325	1.0994	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL3	0.2488	-6.5820	2.6689	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL4	0.4654	-5.1966	1.8236	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL5	1.1022	-5.1778	2.0237	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL6	0.9580	-0.0347	0.0523	0.0000	0.0000	0.0000	0.0000	0.0000
156	Selfweight	-0.2177	-0.3170	-0.4186	0.0000	0.0000	0.0000	0.0000	0.0000
156	SuperDC	-4.8258	-2.1448	0.3147	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL1	0.4825	-0.2693	0.3289	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL2	-2.4372	-0.1573	-0.4237	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL3	-1.6903	-0.9764	0.9453	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL4	-2.4644	-0.5395	0.0187	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL5	-1.5973	-0.5423	0.2421	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL6	0.9066	-0.0325	-0.0693	0.0000	0.0000	0.0000	0.0000	0.0000
157	Selfweight	-0.4526	-0.1628	0.0834	0.0000	0.0000	0.0000	0.0000	0.0000
157	SuperDC	-1.4197	-11.0956	-7.1629	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL1	0.9735	0.0524	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL2	-2.2141	-3.2858	-2.0231	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL3	0.1592	-0.6120	-0.5019	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL4	-1.6393	-2.6552	-1.7744	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL5	-0.4722	-2.6801	-1.6013	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL6	0.6991	0.0074	-0.1174	0.0000	0.0000	0.0000	0.0000	0.0000
158	Selfweight	-0.0693	-0.3406	0.4880	0.0000	0.0000	0.0000	0.0000	0.0000
158	SuperDC	-0.1693	-13.7639	10.3203	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL1	1.0098	-0.0432	0.0301	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL2	-1.7369	-3.7418	2.9304	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL3	0.6013	-1.1488	1.2332	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL4	-1.2302	-3.2377	2.6171	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL5	0.1039	-3.2769	2.6626	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL6	0.3620	-0.0987	-0.2228	0.0000	0.0000	0.0000	0.0000	0.0000
159	Selfweight	0.3577	-0.4849	0.2079	0.0000	0.0000	0.0000	0.0000	0.0000
159	SuperDC	0.0424	0.6655	2.1824	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL1	1.0114	-0.0008	-0.0911	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL2	-0.9318	0.1228	1.1831	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL3	1.2109	0.0191	0.3385	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL4	-0.5600	0.1259	0.9290	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL5	0.7219	0.1026	0.8440	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL6	-0.5216	0.0237	-0.5925	0.0000	0.0000	0.0000	0.0000	0.0000
160	Selfweight	0.3864	-0.4807	-0.1543	0.0000	0.0000	0.0000	0.0000	0.0000
160	SuperDC	-0.2159	-11.8387	-10.1928	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL1	0.9147	0.0030	-0.0723	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL2	0.8313	-0.0957	0.2012	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL3	1.6845	-0.0444	0.0938	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL4	0.6269	-0.7128	-0.3649	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
160	LL5	1.6379	-1.0578	-0.7585	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL6	-2.1806	-2.7246	-2.7676	0.0000	0.0000	0.0000	0.0000	0.0000
161	Selfweight	0.0536	-0.3631	-0.4517	0.0000	0.0000	0.0000	0.0000	0.0000
161	SuperDC	4.8225	-17.8999	0.0234	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL1	0.8377	-0.0116	-0.0785	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL2	1.1521	-0.2907	0.1967	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL3	1.7266	-0.0746	-0.0495	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL4	1.2113	-1.1318	0.2340	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL5	1.9747	-1.7390	-0.2509	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL6	-1.4422	-3.9890	-0.2841	0.0000	0.0000	0.0000	0.0000	0.0000
162	Selfweight	-0.3728	-0.1599	-0.2064	0.0000	0.0000	0.0000	0.0000	0.0000
162	SuperDC	-6.8755	-1.3651	6.6811	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL1	0.6983	-0.0238	-0.1266	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL2	1.1785	-0.0284	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL3	1.5652	-0.0383	-0.2125	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL4	0.6608	-0.2242	0.3239	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL5	0.6697	0.1748	0.4139	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL6	-4.3156	-0.2923	1.5306	0.0000	0.0000	0.0000	0.0000	0.0000
163	Selfweight	-0.3728	-0.1599	0.2064	0.0000	0.0000	0.0000	0.0000	0.0000
163	SuperDC	-6.8728	-1.3651	-6.6751	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL1	0.5651	-0.0019	-0.1588	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL2	1.2322	0.0018	-0.0540	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL3	1.3531	-0.0068	-0.2638	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL4	1.1569	0.1227	-0.0862	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL5	-0.7321	-0.6136	-1.6490	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL6	-4.3156	-0.2923	-1.5306	0.0000	0.0000	0.0000	0.0000	0.0000
164	Selfweight	0.0536	-0.3631	0.4517	0.0000	0.0000	0.0000	0.0000	0.0000
164	SuperDC	4.8335	-17.8990	-0.0158	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL1	0.3874	0.0120	-0.1520	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL2	1.1756	-0.0273	-0.1085	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL3	1.0610	0.0134	-0.2716	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL4	1.1655	-0.0524	-0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL5	1.4116	-3.8929	-0.5044	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL6	-1.4422	-3.9890	0.2841	0.0000	0.0000	0.0000	0.0000	0.0000
165	Selfweight	0.3864	-0.4807	0.1543	0.0000	0.0000	0.0000	0.0000	0.0000
165	SuperDC	-0.1961	-11.8389	10.2024	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL1	0.2321	0.0169	-0.0986	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL2	1.0159	-0.0029	-0.1486	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL3	0.7700	0.0263	-0.1936	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL4	1.1014	-0.0041	-0.0943	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL5	-0.1880	-2.6133	1.9812	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL6	-2.1806	-2.7246	2.7676	0.0000	0.0000	0.0000	0.0000	0.0000
166	Selfweight	0.3577	-0.4849	-0.2079	0.0000	0.0000	0.0000	0.0000	0.0000
166	SuperDC	0.0682	0.6606	-2.1790	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL1	0.1571	0.0179	-0.0570	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL2	0.8964	0.0294	-0.1189	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL3	0.6209	0.0343	-0.1218	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL4	1.0326	0.0137	-0.0799	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL5	-0.5594	0.1834	-0.8181	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
166	LL6	-0.5216	0.0237	0.5925	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	Selfweight	-0.0693	-0.3406	-0.4880	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	SuperDC	-0.1526	-13.7688	-10.3344	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL1	0.1018	0.0029	-0.0290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL2	0.7654	-0.0034	-0.0841	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL3	0.4870	-0.0018	-0.0818	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL4	0.9168	-0.0142	-0.0895	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL5	-0.9470	-3.4251	-2.7808	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL6	0.3620	-0.0987	0.2228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	Selfweight	-0.4526	-0.1628	-0.0834	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	SuperDC	-1.4325	-11.0946	7.1410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL1	0.0494	-0.0014	-0.0323	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL2	0.5803	-0.0146	-0.1382	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL3	0.3213	-0.0076	-0.1166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL4	0.7073	-0.0166	-0.1664	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL5	-1.5339	-2.7513	1.6464	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL6	0.6991	0.0074	0.1174	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
169	Selfweight	-0.2177	-0.3170	0.4186	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
169	SuperDC	-4.8773	-2.1482	-0.3354	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL1	0.0007	0.0049	-0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL2	0.3481	0.0062	-0.1518	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL3	0.1428	0.0141	-0.1012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL4	0.4371	0.0109	-0.1736	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL5	-2.5698	-0.5182	-0.1266	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL6	0.9066	-0.0325	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
170	Selfweight	0.1509	-0.5124	0.2087	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
170	SuperDC	6.6054	-20.6140	-7.7519	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL1	-0.0229	0.0063	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL2	0.1948	0.0200	-0.1102	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL3	0.0458	0.0209	-0.0447	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL4	0.2646	0.0252	-0.1159	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL5	0.2768	-5.1940	-1.9268	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL6	0.9580	-0.0347	-0.0523	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
171	Selfweight	0.2149	-0.5328	-0.0287	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
171	SuperDC	7.0729	-27.6852	6.7272	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL1	-0.0253	0.0035	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL2	0.1412	0.0227	-0.0822	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL3	0.0258	0.0145	-0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL4	0.2080	0.0257	-0.0825	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL5	0.4210	-6.9703	1.7381	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL6	0.9225	-0.0082	-0.0782	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
172	Selfweight	0.0479	-0.5106	-0.3332	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
172	SuperDC	-0.1040	-10.2870	6.6742	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL1	-0.0248	0.0002	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL2	0.1022	0.0185	-0.0498	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL3	0.0164	0.0037	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL4	0.1681	0.0165	-0.0504	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL5	-1.4119	-2.6044	1.6719	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL6	0.8727	0.0023	-0.0801	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
173	Selfweight	-0.4785	-0.3463	-0.6178	0.0000	0.0000	0.0000	0.0000	0.0000
173	SuperDC	-3.6392	0.4249	-5.0941	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL1	-0.0252	-0.0015	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL2	0.0619	0.0062	-0.0174	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL3	-0.0008	-0.0049	-0.0144	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL4	0.1172	0.0008	-0.0305	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL5	-2.0872	0.1211	-1.1543	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL6	0.7708	-0.0089	-0.0888	0.0000	0.0000	0.0000	0.0000	0.0000
174	Selfweight	-1.0286	-0.1494	-0.3140	0.0000	0.0000	0.0000	0.0000	0.0000
174	SuperDC	-3.5104	-14.1935	-8.9793	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL1	-0.0277	0.0001	-0.0030	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL2	0.0386	-0.0017	-0.0126	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL3	-0.0267	-0.0017	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL4	0.0695	-0.0040	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL5	-2.0041	-3.1147	-1.9755	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL6	0.6225	-0.0172	-0.1365	0.0000	0.0000	0.0000	0.0000	0.0000
175	Selfweight	-1.0919	-0.1623	0.2486	0.0000	0.0000	0.0000	0.0000	0.0000
175	SuperDC	-3.7999	-15.3620	9.4887	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL1	-0.0297	0.0019	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL2	0.0196	-0.0001	-0.0161	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL3	-0.0528	0.0058	-0.0203	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL4	0.0222	0.0032	-0.0403	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL5	-1.9782	-3.3193	2.1540	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL6	0.4446	-0.0044	-0.1658	0.0000	0.0000	0.0000	0.0000	0.0000
176	Selfweight	-0.7154	-0.3350	0.4881	0.0000	0.0000	0.0000	0.0000	0.0000
176	SuperDC	-3.6517	-0.2731	6.2896	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL1	-0.0275	0.0031	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL2	0.0044	0.0035	-0.0111	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL3	-0.0637	0.0119	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL4	-0.0114	0.0112	-0.0207	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL5	-1.8599	-0.1698	1.3187	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL6	0.2788	0.0103	-0.1564	0.0000	0.0000	0.0000	0.0000	0.0000
177	Selfweight	-0.3060	-0.4360	0.3303	0.0000	0.0000	0.0000	0.0000	0.0000
177	SuperDC	-1.6807	-4.1234	-3.6622	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL1	-0.0191	0.0013	0.0123	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL2	-0.0026	0.0034	-0.0013	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL3	-0.0502	0.0067	0.0296	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL4	-0.0210	0.0088	0.0071	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL5	-0.3955	-0.1616	0.1740	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL6	0.1400	0.0206	-0.1163	0.0000	0.0000	0.0000	0.0000	0.0000
178	Selfweight	-0.0968	-0.4166	0.1372	0.0000	0.0000	0.0000	0.0000	0.0000
178	SuperDC	3.9290	-19.8668	-7.0636	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL1	-0.0094	-0.0022	0.0116	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL2	-0.0026	0.0007	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL3	-0.0262	-0.0048	0.0322	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL4	-0.0134	-0.0002	0.0167	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL5	-0.0315	-0.7332	-0.0106	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL6	0.0566	0.0249	-0.0677	0.0000	0.0000	0.0000	0.0000	0.0000
179	Selfweight	-0.0343	-0.3903	0.0562	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
179	SuperDC	6.2151	-26.6038	3.7356	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL1	-0.0042	-0.0042	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL2	-0.0014	-0.0010	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL3	-0.0121	-0.0115	0.0234	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL4	-0.0066	-0.0057	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL5	0.1428	-0.8111	0.1287	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL6	0.0229	0.0258	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
180	Selfweight	-0.0107	-0.3582	0.0144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
180	SuperDC	-0.7093	-11.0933	5.6974	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
180	LL1	-0.0014	-0.0042	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
180	LL2	-0.0005	-0.0020	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
180	LL3	-0.0041	-0.0125	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
180	LL4	-0.0023	-0.0079	0.0066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
180	LL5	-0.0304	-0.3195	0.1573	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
180	LL6	0.0075	0.0170	-0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
181	Selfweight	-0.0001	-0.1157	-0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
181	SuperDC	-2.6777	-1.4294	-1.6219	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
181	LL1	-0.1913	-0.1068	-0.1137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
181	LL2	-0.1236	-0.0693	-0.0716	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
181	LL3	-0.7684	-0.4119	-0.4643	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
181	LL4	-0.5810	-0.3110	-0.3507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
181	LL5	-0.5795	-0.3100	-0.3500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
181	LL6	0.0048	0.0030	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
182	Selfweight	-0.0159	-0.1242	-0.0165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
182	SuperDC	-12.6411	-39.1339	-22.0410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL1	-0.9006	-2.6129	-1.5110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL2	-0.6016	-1.8601	-1.0555	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL3	-3.6209	-11.0923	-6.2701	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL4	-2.7475	-8.4970	-4.7887	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL5	-2.7416	-8.4947	-4.7845	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL6	0.0183	0.0060	0.0125	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	Selfweight	-0.1021	-0.1263	-0.0508	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	SuperDC	-7.0647	-33.0183	15.5472	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL1	-0.7946	-2.1803	0.9266	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL2	-0.4765	-1.5553	0.6956	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL3	-2.1761	-9.3529	4.3339	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL4	-1.5828	-7.1674	3.3545	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL5	-1.5601	-7.1656	3.3641	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL6	0.0637	0.0041	0.0259	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
184	Selfweight	-0.4455	-0.1288	-0.1328	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
184	SuperDC	5.7952	3.1137	-2.2037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL1	-0.8220	-0.0139	-0.5988	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL2	-0.4584	-0.0440	-0.4433	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL3	1.0407	0.8302	-0.8033	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL4	1.0178	0.6376	-0.5710	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL5	1.0930	0.6392	-0.5520	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL6	0.1949	0.0030	0.0463	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
185	Selfweight	-1.1256	-0.1123	-0.2012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
185	SuperDC	3.6926	2.7475	1.0090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
185	LL1	-2.2479	1.2462	0.2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL2	-1.5347	1.0284	0.1761	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL3	-0.2579	0.9871	0.1855	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL4	0.1987	0.7515	0.1827	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL5	0.3706	0.7526	0.2107	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL6	0.4192	0.0019	0.0628	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
186	Selfweight	-1.7478	-0.0830	-0.1047	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
186	SuperDC	-12.9451	-18.3984	-10.4492	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL1	-8.2871	-6.6735	-3.6912	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL2	-6.5013	-5.5058	-3.0507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL3	-6.5179	-6.3053	-3.7019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL4	-4.4195	-4.8123	-2.7899	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL5	-4.1283	-4.8132	-2.7608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL6	0.6865	-0.0015	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
187	Selfweight	-1.6497	-0.0830	0.1282	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
187	SuperDC	-12.0591	-18.0489	9.2491	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL1	-8.0174	-6.5143	3.2701	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL2	-6.2619	-5.3701	2.7155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL3	-6.7951	-6.1715	3.0402	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL4	-4.4763	-4.7117	2.3545	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL5	-4.0703	-4.7134	2.3762	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL6	0.9539	-0.0036	0.0532	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
188	Selfweight	-0.7247	-0.1121	0.2577	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
188	SuperDC	5.5857	3.8361	-0.6078	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL1	-1.8225	1.4021	-0.2588	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL2	-1.1053	1.1486	-0.2010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL3	-1.1774	1.3230	-0.2571	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL4	-0.0976	1.0046	-0.1911	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL5	0.4117	1.0061	-0.1726	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL6	1.1678	-0.0009	0.0325	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
189	Selfweight	0.1618	-0.1393	0.1338	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
189	SuperDC	3.4528	-2.0034	-0.8755	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL1	-0.6855	-0.3761	0.4920	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL2	-0.9360	-0.4463	0.0794	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL3	-1.8041	-0.6390	-0.2061	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL4	-0.7493	-0.5178	-0.2391	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL5	-0.1011	-0.5092	-0.1946	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL6	1.3156	0.0024	0.0327	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
190	Selfweight	0.4401	-0.1528	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
190	SuperDC	-10.2790	-41.2542	-25.4126	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL1	-0.5964	-2.4853	-1.3771	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL2	-2.7433	-6.1133	-3.8080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL3	-5.9739	-13.2396	-8.0456	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL4	-4.2845	-10.4065	-6.4472	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL5	-3.5007	-10.3967	-6.3823	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL6	1.4027	-0.0022	0.0309	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
191	Selfweight	0.3372	-0.1368	-0.0763	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
191	SuperDC	-7.3956	-37.7412	14.9619	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL1	0.0359	-2.2476	1.1460	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
191	LL2	-2.4856	-5.7509	1.9592	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL3	-4.6122	-11.8525	5.2781	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL4	-3.6348	-9.5023	3.7433	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL5	-2.7003	-9.5049	3.8220	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL6	1.4511	-0.0057	0.0202	0.0000	0.0000	0.0000	0.0000	0.0000
192	Selfweight	-0.3189	-0.1055	-0.1849	0.0000	0.0000	0.0000	0.0000	0.0000
192	SuperDC	5.4413	6.4073	-0.0429	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL1	1.2589	0.1682	-0.0231	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL2	-0.8835	1.4218	0.1060	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL3	0.0559	1.2203	-0.2358	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL4	-0.5733	1.5848	-0.0649	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL5	0.7505	1.5796	0.0260	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL6	1.4009	-0.0065	-0.0226	0.0000	0.0000	0.0000	0.0000	0.0000
193	Selfweight	-0.7568	-0.0930	0.0377	0.0000	0.0000	0.0000	0.0000	0.0000
193	SuperDC	-8.2243	-15.5635	-5.8718	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL1	1.5085	-0.0383	0.0537	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL2	-5.1126	-4.3506	-1.7986	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL3	-0.3575	-1.3680	-0.2009	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL4	-4.0404	-3.7713	-1.4264	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL5	-2.2192	-3.7713	-1.3568	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL6	1.1884	0.0110	-0.0443	0.0000	0.0000	0.0000	0.0000	0.0000
194	Selfweight	-0.0857	-0.1101	0.2053	0.0000	0.0000	0.0000	0.0000	0.0000
194	SuperDC	-4.8570	-14.8075	8.1173	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL1	1.5616	0.0027	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL2	-4.2661	-4.1719	2.3506	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL3	0.5687	-1.1051	0.6598	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL4	-3.1674	-3.5335	1.9846	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL5	-1.0812	-3.5427	2.0011	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL6	0.8407	-0.0478	-0.0597	0.0000	0.0000	0.0000	0.0000	0.0000
195	Selfweight	0.6429	-0.1305	0.0812	0.0000	0.0000	0.0000	0.0000	0.0000
195	SuperDC	12.1437	4.7877	-1.6265	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL1	1.4943	0.0037	-0.0216	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL2	0.8931	1.1732	-0.3491	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL3	2.3686	0.3213	-0.0098	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL4	1.2834	1.0321	-0.2786	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL5	3.3699	1.0527	-0.2955	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL6	0.2669	0.1447	-0.1730	0.0000	0.0000	0.0000	0.0000	0.0000
196	Selfweight	0.6857	-0.1473	-0.0596	0.0000	0.0000	0.0000	0.0000	0.0000
196	SuperDC	4.5926	-4.8698	-2.1341	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL1	1.3779	-0.0146	-0.0231	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL2	1.4020	-0.2945	0.3230	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL3	2.6023	-0.1102	0.0925	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL4	1.2975	-0.4594	0.1184	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL5	3.0281	-0.6015	-0.0211	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL6	-2.2269	-0.8854	-0.8590	0.0000	0.0000	0.0000	0.0000	0.0000
197	Selfweight	-0.0089	-0.1518	-0.1772	0.0000	0.0000	0.0000	0.0000	0.0000
197	SuperDC	-10.7405	-44.7892	6.9418	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL1	1.2164	0.0795	-0.0180	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL2	1.7675	-0.1699	0.0897	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
197	LL3	2.6003	0.1980	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL4	0.8506	-2.5514	0.4531	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL5	1.5565	-3.5343	0.5512	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL6	-6.4483	-10.6832	1.5097	0.0000	0.0000	0.0000	0.0000	0.0000
198	Selfweight	-0.5567	-0.0759	-0.1145	0.0000	0.0000	0.0000	0.0000	0.0000
198	SuperDC	3.6074	7.4733	-5.9161	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL1	1.0667	-0.0267	-0.0537	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL2	2.0232	0.0222	-0.0398	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL3	2.4164	-0.0620	-0.0867	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL4	1.9019	0.5028	-0.2721	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL5	2.3534	0.3486	-0.7911	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL6	-3.4261	1.8078	-1.3974	0.0000	0.0000	0.0000	0.0000	0.0000
199	Selfweight	-0.5567	-0.0759	0.1145	0.0000	0.0000	0.0000	0.0000	0.0000
199	SuperDC	3.6121	7.4730	5.9187	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL1	0.8456	-0.0044	-0.0682	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL2	1.9402	-0.0405	-0.0216	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL3	2.0455	-0.0155	-0.1169	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL4	1.7991	-0.1238	0.0559	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL5	2.0513	1.8828	1.0039	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL6	-3.4261	1.8078	1.3974	0.0000	0.0000	0.0000	0.0000	0.0000
200	Selfweight	-0.0089	-0.1518	0.1772	0.0000	0.0000	0.0000	0.0000	0.0000
200	SuperDC	-10.7249	-44.7882	-6.9392	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL1	0.5895	0.0430	-0.0601	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL2	1.7854	0.1335	-0.0548	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL3	1.5942	0.1133	-0.1107	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL4	1.7560	0.1550	-0.0386	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL5	-1.8085	-9.9650	-1.6636	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL6	-6.4483	-10.6832	-1.5097	0.0000	0.0000	0.0000	0.0000	0.0000
201	Selfweight	0.6857	-0.1473	0.0596	0.0000	0.0000	0.0000	0.0000	0.0000
201	SuperDC	4.6253	-4.8701	2.1380	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL1	0.3344	0.0016	-0.0442	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL2	1.5489	-0.0180	-0.0773	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL3	1.1287	-0.0037	-0.0913	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL4	1.6727	-0.0216	-0.0474	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL5	0.8262	-1.0925	0.3188	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL6	-2.2269	-0.8854	0.8590	0.0000	0.0000	0.0000	0.0000	0.0000
202	Selfweight	0.6429	-0.1305	-0.0812	0.0000	0.0000	0.0000	0.0000	0.0000
202	SuperDC	12.1874	4.7871	1.6282	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL1	0.2060	0.0043	-0.0207	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL2	1.3202	0.0127	-0.0436	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL3	0.8659	0.0105	-0.0437	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL4	1.5224	0.0098	-0.0311	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL5	2.0602	1.1826	0.3159	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL6	0.2669	0.1447	0.1730	0.0000	0.0000	0.0000	0.0000	0.0000
203	Selfweight	-0.0857	-0.1101	-0.2053	0.0000	0.0000	0.0000	0.0000	0.0000
203	SuperDC	-4.8259	-14.8081	-8.1228	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL1	0.1315	0.0006	-0.0102	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL2	1.1383	-0.0008	-0.0301	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL3	0.6856	0.0000	-0.0293	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
203	LL4	1.3647	-0.0020	-0.0316	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL5	-2.6079	-3.6934	-2.1055	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL6	0.8407	-0.0478	0.0597	0.0000	0.0000	0.0000	0.0000	0.0000
204	Selfweight	-0.7568	-0.0930	-0.0377	0.0000	0.0000	0.0000	0.0000	0.0000
204	SuperDC	-8.2356	-15.5631	5.8633	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL1	0.0620	-0.0001	-0.0124	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL2	0.8812	-0.0005	-0.0534	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL3	0.4568	-0.0003	-0.0453	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL4	1.0659	-0.0006	-0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL5	-3.8466	-3.8909	1.4101	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL6	1.1884	0.0110	0.0443	0.0000	0.0000	0.0000	0.0000	0.0000
205	Selfweight	-0.3189	-0.1055	0.1849	0.0000	0.0000	0.0000	0.0000	0.0000
205	SuperDC	5.3794	6.4063	0.0356	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL1	-0.0082	0.0003	-0.0099	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL2	0.5225	-0.0020	-0.0614	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL3	0.1886	0.0003	-0.0403	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL4	0.6442	-0.0017	-0.0698	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL5	-0.6527	1.6112	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL6	1.4009	-0.0065	0.0226	0.0000	0.0000	0.0000	0.0000	0.0000
206	Selfweight	0.3372	-0.1368	0.0763	0.0000	0.0000	0.0000	0.0000	0.0000
206	SuperDC	-7.5025	-37.7438	-14.9754	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL1	-0.0424	0.0008	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL2	0.2736	0.0000	-0.0424	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL3	0.0400	0.0020	-0.0161	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL4	0.3656	0.0007	-0.0444	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL5	-3.9268	-9.5164	-3.7723	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL6	1.4511	-0.0057	-0.0202	0.0000	0.0000	0.0000	0.0000	0.0000
207	Selfweight	0.4401	-0.1528	-0.0080	0.0000	0.0000	0.0000	0.0000	0.0000
207	SuperDC	-10.4237	-41.2529	25.3965	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL1	-0.0458	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL2	0.1935	0.0061	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL3	0.0117	0.0036	-0.0078	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL4	0.2827	0.0069	-0.0319	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL5	-4.6461	-10.4084	6.4036	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL6	1.4027	-0.0022	-0.0309	0.0000	0.0000	0.0000	0.0000	0.0000
208	Selfweight	0.1618	-0.1393	-0.1338	0.0000	0.0000	0.0000	0.0000	0.0000
208	SuperDC	3.2160	-2.0270	0.8223	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL1	-0.0437	0.0000	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL2	0.1317	0.0046	-0.0194	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL3	0.0006	0.0010	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL4	0.2209	0.0043	-0.0190	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL5	-1.1783	-0.4836	0.2398	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL6	1.3156	0.0024	-0.0327	0.0000	0.0000	0.0000	0.0000	0.0000
209	Selfweight	-0.7247	-0.1121	-0.2577	0.0000	0.0000	0.0000	0.0000	0.0000
209	SuperDC	5.2110	3.9418	0.6209	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL1	-0.0425	-0.0003	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL2	0.0770	0.0009	-0.0055	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL3	-0.0181	-0.0008	-0.0051	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL4	0.1542	0.0000	-0.0104	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
209	LL5	-0.6465	0.8667	0.1042	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL6	1.1678	-0.0009	-0.0325	0.0000	0.0000	0.0000	0.0000	0.0000
210	Selfweight	-1.6497	-0.0830	-0.1282	0.0000	0.0000	0.0000	0.0000	0.0000
210	SuperDC	-12.9267	-18.5378	-9.4983	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL1	-0.0465	0.0000	-0.0013	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL2	0.0503	-0.0004	-0.0046	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL3	-0.0557	-0.0004	-0.0101	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL4	0.0905	-0.0009	-0.0148	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL5	-4.6886	-4.0617	-2.0765	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL6	0.9539	-0.0036	-0.0532	0.0000	0.0000	0.0000	0.0000	0.0000
211	Selfweight	-1.7478	-0.0830	0.1047	0.0000	0.0000	0.0000	0.0000	0.0000
211	SuperDC	-13.8617	-18.9035	10.7126	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL1	-0.0502	0.0003	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL2	0.0257	-0.0001	-0.0062	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL3	-0.0968	0.0009	-0.0081	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL4	0.0212	0.0004	-0.0159	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL5	-4.8833	-4.1706	2.3203	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL6	0.6865	-0.0015	-0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
212	Selfweight	-1.1256	-0.1123	0.2012	0.0000	0.0000	0.0000	0.0000	0.0000
212	SuperDC	3.2077	2.8693	-1.0129	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL1	-0.0457	0.0005	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL2	0.0035	0.0006	-0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL3	-0.1105	0.0021	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL4	-0.0289	0.0020	-0.0081	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL5	-1.0997	0.7821	-0.1282	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL6	0.4192	0.0019	-0.0628	0.0000	0.0000	0.0000	0.0000	0.0000
213	Selfweight	-0.4455	-0.1288	0.1328	0.0000	0.0000	0.0000	0.0000	0.0000
213	SuperDC	5.4593	2.9840	2.2168	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL1	-0.0303	0.0003	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL2	-0.0064	0.0006	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL3	-0.0825	0.0014	0.0127	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL4	-0.0393	0.0017	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL5	-0.2962	-0.0646	0.3141	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL6	0.1949	0.0030	-0.0463	0.0000	0.0000	0.0000	0.0000	0.0000
214	Selfweight	-0.1021	-0.1263	0.0508	0.0000	0.0000	0.0000	0.0000	0.0000
214	SuperDC	-6.9032	-32.0832	-15.0968	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL1	-0.0134	-0.0003	0.0048	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL2	-0.0053	0.0002	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL3	-0.0391	-0.0006	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL4	-0.0229	0.0002	0.0073	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL5	-0.2551	-0.9325	-0.4300	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL6	0.0637	0.0041	-0.0259	0.0000	0.0000	0.0000	0.0000	0.0000
215	Selfweight	-0.0159	-0.1242	0.0165	0.0000	0.0000	0.0000	0.0000	0.0000
215	SuperDC	-12.2875	-38.0299	21.4225	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL1	-0.0049	-0.0010	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL2	-0.0024	-0.0003	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL3	-0.0148	-0.0028	0.0091	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL4	-0.0095	-0.0014	0.0057	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL5	-0.3397	-1.1145	0.6227	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
215	LL6	0.0183	0.0060	-0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
216	Selfweight	-0.0001	-0.1157	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000
216	SuperDC	-2.6022	-1.3899	1.5756	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL1	-0.0014	-0.0008	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL2	-0.0008	-0.0004	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL3	-0.0044	-0.0025	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL4	-0.0029	-0.0017	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL5	-0.0670	-0.0382	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL6	0.0048	0.0030	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
217	Selfweight	-0.1497	0.4190	-0.2536	0.0000	0.0000	0.0000	0.0000	0.0000
217	SuperDC	-38.9636	8.9335	8.5956	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL1	0.3946	0.9137	-0.6453	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL2	0.2440	1.4550	-0.8711	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL3	0.8424	1.9166	-1.3516	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL4	-1.8293	1.5517	-0.2123	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL5	-2.6261	2.8089	-0.6357	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL6	-10.2951	-0.6382	3.9517	0.0000	0.0000	0.0000	0.0000	0.0000
218	Selfweight	-0.1812	0.4505	-0.2132	0.0000	0.0000	0.0000	0.0000	0.0000
218	SuperDC	-12.5797	-17.4279	-25.3319	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL1	0.0062	0.4780	0.0382	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL2	-0.0447	1.7814	-0.0442	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL3	-0.0055	1.4241	0.0415	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL4	-0.0557	1.8103	-0.0844	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL5	-2.7429	-3.6119	-5.4658	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL6	-2.8251	-8.1083	-5.6526	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft) Result Cases

LLMaxMin		
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RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
1	LL6	0.0261	0.1296	-0.0471	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL3	-1.0854	-3.6948	1.7709	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL1	-0.0834	-4.5214	-0.6195	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL6	0.0081	0.3458	0.0941	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL3	-0.5837	-3.6228	-3.2258	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL6	0.0508	0.1337	0.1552	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL6	-0.0837	0.1037	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL3	-0.4196	-4.2281	2.2386	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL3	1.2170	-4.7517	-2.9217	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL6	-0.4478	0.0832	0.0754	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL1	6.6140	0.2874	-0.1064	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL5	3.3182	0.4524	0.1331	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL3	6.0340	0.5383	-0.2588	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL1	6.5203	0.2305	0.1483	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL6	-1.4944	-0.1606	0.3346	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL1	2.9048	-2.1672	1.7573	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
9	LL3	-0.0875	-4.0322	-1.8261	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL6	-0.2471	0.0711	0.2642	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL6	-0.5336	-0.0758	0.0876	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL3	0.3845	-3.1387	3.5576	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL6	-0.5328	-0.4550	-0.2607	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL3	0.1012	-6.3406	0.6828	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL2	2.0427	-2.1143	-1.0153	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL3	1.5192	-1.9563	-0.1687	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL2	4.7775	0.8780	-0.2190	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL3	1.1083	0.7344	0.2322	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL6	-0.4915	-1.4082	0.0723	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL5	-1.2242	-3.3493	2.1578	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL6	-0.7000	-1.2748	-1.8930	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL1	-0.4809	-0.1729	0.1115	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL1	-0.2631	0.1176	-0.2425	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL5	-1.3493	-2.2229	1.4288	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL5	-3.6786	-3.0512	-1.9366	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL1	-1.5169	-0.1995	-0.3346	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL1	-0.9745	0.0250	-0.0133	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL4	-1.0704	0.4137	0.3534	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL5	0.1640	0.6911	-0.7905	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL4	-1.4481	0.0315	-0.0460	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL1	-0.5356	0.0912	-0.0704	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL5	-1.1049	-3.2223	1.4074	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL5	-0.7087	-2.6650	-2.0209	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL3	-0.3138	0.1979	0.1611	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL2	-0.2136	0.1953	-0.3179	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL6	-0.7000	-1.2748	1.8930	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL5	0.6025	-3.8157	-2.0299	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL1	-0.1579	0.0406	-0.0443	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL2	-0.8459	-0.0202	-0.0180	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL5	4.0098	1.2121	0.1997	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL3	-0.0132	0.1483	-0.1301	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL5	2.0076	-2.3947	0.7902	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL5	-0.0319	-6.3171	-0.3890	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL6	-0.5328	-0.4550	0.2607	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL5	0.1971	-2.9174	-3.0004	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL4	-0.0956	0.1074	0.0473	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL6	-0.2471	0.0711	-0.2642	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL5	-0.2426	-3.2578	1.5224	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL5	2.0286	-2.8928	-1.3365	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL1	0.0596	-0.0085	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL6	-0.9443	0.0054	-0.0333	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL5	4.1355	0.4990	0.1912	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL6	-0.6867	-0.0139	-0.0662	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL5	3.7491	0.1663	0.0381	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL3	0.2284	0.1175	-0.0841	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL5	1.2734	-2.0961	1.5505	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL5	0.0031	-1.9158	-0.6932	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
33	LL6	-0.0837	0.1037	0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL6	0.0508	0.1337	-0.1552	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL5	-0.1989	-0.5869	1.0391	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL6	0.0081	0.3458	-0.0941	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL5	-0.0250	-1.9351	0.1699	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL5	-0.1284	-0.5619	-0.2189	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL6	0.0261	0.1296	0.0471	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL6	-0.0335	0.1113	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL3	0.9592	-4.4340	0.8720	0.0000	0.0000	0.0000	0.0000	0.0000
38	LL1	0.5626	-2.4044	-0.4622	0.0000	0.0000	0.0000	0.0000	0.0000
38	LL6	-0.0475	0.1805	0.0521	0.0000	0.0000	0.0000	0.0000	0.0000
39	LL1	-0.1034	-1.9544	-0.9051	0.0000	0.0000	0.0000	0.0000	0.0000
39	LL6	-0.0209	0.1486	0.1120	0.0000	0.0000	0.0000	0.0000	0.0000
40	LL1	0.6516	-2.4259	-0.7690	0.0000	0.0000	0.0000	0.0000	0.0000
40	LL5	-0.0479	-3.2574	0.3266	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL3	1.5310	-3.4487	-2.7884	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL6	-0.2375	0.0512	0.1816	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL3	1.9816	-0.7931	-1.8874	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL6	-0.3785	0.0154	0.1424	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL6	-0.6072	-0.0769	0.2438	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL1	2.9956	-0.6678	1.2962	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL6	-0.4745	-0.1063	0.1648	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL1	1.8829	-1.6978	2.4798	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL4	0.4200	-4.0957	-0.2877	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL1	0.5201	-2.2218	0.8980	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL4	-0.0384	-4.0251	0.1672	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL1	-0.2648	-1.5696	0.7391	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL2	0.8510	-3.6955	0.0864	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL1	-0.1007	-1.6272	0.7478	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL2	1.2518	-1.8135	-1.7406	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL1	-0.4836	-0.7664	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL6	-0.9078	0.1092	-0.3184	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL3	-0.2772	0.1537	0.8685	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL6	-0.3673	-0.7822	-0.2094	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL5	0.6288	-2.5615	2.2354	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL6	-0.2516	-1.6099	-1.4376	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL2	0.1969	-1.9941	0.7855	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL6	0.8867	-2.5737	-0.7833	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL2	-0.7474	-1.0494	1.1397	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL6	2.1527	-2.1178	-1.3790	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL2	-0.8161	-0.8754	-0.0359	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL5	-1.4782	0.0378	-1.2814	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL4	-1.0855	0.0035	-0.0261	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL1	-0.4298	0.0094	-0.1368	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL4	-1.0289	0.0204	0.4084	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL3	-0.6823	0.0068	-0.2593	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL6	2.1527	-2.1178	1.3790	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL5	-0.4815	-2.9644	-0.7386	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL6	0.8867	-2.5737	0.7833	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
58	LL3	-0.2193	0.1650	-0.1190	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL6	-0.2516	-1.6099	1.4376	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL5	1.2503	-2.8755	-2.2181	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL6	-0.3673	-0.7822	0.2094	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL4	-0.6185	-0.0788	-0.2519	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL6	-0.9078	0.1092	0.3184	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL4	-0.2778	0.1052	-0.1719	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL5	1.1728	-2.1041	1.4136	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL5	1.0809	-4.5472	-0.2903	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL1	0.0224	0.0514	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL5	-0.0005	-4.0178	-0.2937	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL3	0.0208	0.0756	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL6	-0.5206	0.0481	-0.0848	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL5	0.4856	-3.9026	0.1764	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL5	1.1105	-2.1447	-1.4452	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL1	0.0298	-0.0070	-0.0052	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL5	1.5237	-0.2472	-0.6325	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL1	0.0366	0.0008	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL6	-0.3785	0.0154	-0.1424	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL5	1.6064	-0.5020	1.1254	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL6	-0.2375	0.0512	-0.1816	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL5	1.1403	-1.6420	1.7483	0.0000	0.0000	0.0000	0.0000	0.0000
69	LL6	-0.0984	0.1137	-0.1162	0.0000	0.0000	0.0000	0.0000	0.0000
69	LL5	0.3087	-1.6614	0.2898	0.0000	0.0000	0.0000	0.0000	0.0000
70	LL6	-0.0209	0.1486	-0.1120	0.0000	0.0000	0.0000	0.0000	0.0000
70	LL5	-0.1795	-0.8500	0.3434	0.0000	0.0000	0.0000	0.0000	0.0000
71	LL6	-0.0475	0.1805	-0.0521	0.0000	0.0000	0.0000	0.0000	0.0000
71	LL5	0.2127	-0.9471	0.2543	0.0000	0.0000	0.0000	0.0000	0.0000
72	LL5	0.1342	-0.5949	-0.0791	0.0000	0.0000	0.0000	0.0000	0.0000
72	LL6	-0.0335	0.1113	0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
73	LL1	0.0853	-1.4760	-0.1141	0.0000	0.0000	0.0000	0.0000	0.0000
73	LL6	-0.0051	0.0845	0.0192	0.0000	0.0000	0.0000	0.0000	0.0000
74	LL1	0.2442	-1.7301	-0.2736	0.0000	0.0000	0.0000	0.0000	0.0000
74	LL5	0.5965	-3.5553	0.1168	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL1	0.1316	-1.7802	-0.5802	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL5	0.3560	-3.3453	0.2231	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL1	0.0847	-1.7631	-1.3557	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL6	-0.0303	0.0855	0.1663	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL1	0.3139	-1.7459	-2.8553	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL6	-0.0571	0.0449	0.2118	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL3	0.5237	-2.0791	-2.3391	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL6	-0.1195	-0.0047	0.2349	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL6	-0.1038	-0.0659	0.2305	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL1	0.8093	-1.9440	1.7223	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL6	-0.0840	-0.0601	0.1397	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL1	0.2431	-1.3602	2.7484	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL4	0.3398	-3.6634	-0.1674	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL1	0.1577	-1.5956	1.3180	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL4	0.7255	-4.4658	-0.3149	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
82	LL1	0.1132	-1.5979	0.7993	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL2	0.4327	-3.0339	-0.3692	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL1	0.1062	-1.4182	0.6709	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL2	-0.0485	-1.4583	-1.5025	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL3	-0.0996	-1.8803	0.3550	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL2	0.2022	-1.3572	-0.6457	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL3	-0.3727	-0.2342	0.6636	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL6	-0.3873	-0.4536	-0.4019	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL2	0.6669	-2.4515	2.3284	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL6	-0.2174	-1.3634	-1.4154	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL2	0.0247	-1.5294	1.7232	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL6	0.3931	-2.6121	-1.7240	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL2	-0.3258	-0.8100	0.9410	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL6	0.6888	-2.3291	-1.2567	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL2	-0.2489	-0.5383	0.1421	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL5	-0.7476	-0.3071	-1.0733	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL4	-0.3395	-0.2237	0.1162	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL5	-0.6959	-0.5977	-0.5791	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL6	0.0283	-0.4977	0.2582	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL3	-0.0914	0.0388	-0.3497	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL6	0.6888	-2.3291	1.2567	0.0000	0.0000	0.0000	0.0000	0.0000
93	LL3	-0.0241	0.1429	-0.2931	0.0000	0.0000	0.0000	0.0000	0.0000
93	LL6	0.3931	-2.6121	1.7240	0.0000	0.0000	0.0000	0.0000	0.0000
94	LL5	-0.1495	-2.5313	-0.6375	0.0000	0.0000	0.0000	0.0000	0.0000
94	LL6	-0.2174	-1.3634	1.4154	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL5	0.3489	-2.6612	-2.2125	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL6	-0.3873	-0.4536	0.4019	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL4	-0.0795	-0.0680	-0.2738	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL6	-0.3097	0.0258	0.2760	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL4	-0.0800	0.0658	-0.2441	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL5	-0.1194	-1.8231	0.9660	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL4	-0.0069	0.1201	-0.1483	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL5	0.6685	-4.0969	0.1370	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL6	-0.1243	-0.0126	-0.1724	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL5	0.6907	-4.4529	0.1539	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL6	-0.0651	0.0252	-0.1105	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL5	0.2871	-3.5479	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL5	-0.1491	-1.6836	-1.3860	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL1	0.0139	-0.0055	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL5	0.1456	-1.0993	-0.9715	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL1	0.0145	0.0004	-0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL6	-0.1195	-0.0047	-0.2349	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL5	0.4128	-1.3417	1.3322	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL6	-0.0571	0.0449	-0.2118	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL5	0.1932	-1.2730	1.8496	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL6	-0.0303	0.0855	-0.1663	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL5	0.0545	-1.1429	0.6893	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL6	-0.0200	0.1080	-0.1038	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL5	-0.0071	-0.8404	0.1909	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)		In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
107	LL6	-0.0179	0.1048	-0.0531	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
107	LL5	0.0483	-0.6973	0.0810	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
108	LL6	-0.0051	0.0845	-0.0192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
108	LL5	0.0263	-0.5219	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
109	LL3	0.7004	-4.3183	-0.7713	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
109	LL6	0.0020	0.0474	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
110	LL1	0.1991	-1.6783	-0.3665	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
110	LL6	0.0076	0.0597	0.0558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
111	LL1	0.0741	-1.5434	-0.3341	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
111	LL3	0.7890	-4.8347	0.6844	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
112	LL1	-0.7285	-0.9628	-1.0822	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
112	LL5	-0.2445	-1.9049	0.2254	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
113	LL1	-1.5347	-1.1997	-2.8331	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
113	LL6	0.1133	0.0256	0.2101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
114	LL3	-0.7683	-3.5315	-2.8604	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
114	LL6	0.1843	-0.0070	0.2250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
115	LL6	0.2731	-0.0411	0.1965	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
115	LL1	-1.1295	-3.4303	2.2734	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
116	LL6	0.3603	-0.0260	0.1236	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
116	LL1	-1.4668	-0.8263	2.5988	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
117	LL4	-0.1817	-3.2025	-0.8367	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
117	LL1	-0.3946	-0.9857	0.9881	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
118	LL4	0.8573	-5.0977	-0.4522	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
118	LL1	0.3587	-1.5484	0.6858	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
119	LL2	-0.0369	-2.7018	0.0236	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
119	LL3	0.3586	-5.0616	1.0329	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
120	LL2	-1.2427	-0.9967	-1.0851	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
120	LL3	-0.7021	-1.6906	0.8085	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
121	LL2	-1.0267	-2.3504	-1.2345	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
121	LL3	-0.3945	-0.4335	0.1991	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
122	LL6	-0.0563	-0.1729	-0.3112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
122	LL2	-0.3311	-3.0411	2.5389	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
123	LL6	-0.6867	-0.8330	-1.3659	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
123	LL2	-0.5533	-0.8309	1.8800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
124	LL6	-0.3184	-2.6573	-2.2636	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
124	LL2	0.0763	-0.3773	0.6627	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
125	LL6	-0.7072	-2.9465	-0.7976	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
125	LL2	0.4632	-0.3557	0.1672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
126	LL5	-0.2365	-0.2801	-0.6271	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
126	LL6	-2.0159	-0.6750	0.2353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
127	LL5	-0.2190	-0.8115	-1.0202	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
127	LL4	0.3248	0.0071	0.1300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
128	LL3	0.4933	0.0286	-0.3581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
128	LL6	-0.7072	-2.9465	0.7976	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
129	LL3	0.3953	0.0799	-0.2702	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
129	LL6	-0.3184	-2.6573	2.2636	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	LL5	-0.7678	-1.4654	-0.8511	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	LL6	-0.6867	-0.8330	1.3659	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	LL5	-0.1015	-2.8641	-2.4325	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
131	LL6	-0.0563	-0.1729	0.3112	0.0000	0.0000	0.0000	0.0000	0.0000
132	LL4	0.3325	-0.0413	-0.2360	0.0000	0.0000	0.0000	0.0000	0.0000
132	LL5	-0.9821	-1.9678	0.7510	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL4	0.1958	0.0330	-0.2347	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL5	-1.2458	-1.4256	0.4279	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL5	0.1341	-4.1081	-0.3796	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL1	-0.0089	0.0171	-0.0083	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL6	0.4462	-0.0143	-0.1180	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL5	0.7072	-5.0787	0.3120	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL6	0.3983	0.0042	-0.1098	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL5	-0.3372	-3.1641	0.7476	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL5	-1.4252	-0.9760	-1.2671	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL1	-0.0058	-0.0034	-0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL5	-0.8465	-2.0350	-1.4489	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL1	-0.0074	0.0002	-0.0037	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL6	0.1843	-0.0070	-0.2250	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL5	-0.6653	-2.3260	1.6201	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL6	0.1133	0.0256	-0.2101	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL5	-0.8484	-0.8405	1.7820	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL6	0.0601	0.0514	-0.1565	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL5	-0.3681	-0.5879	0.5814	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL6	0.0220	0.0605	-0.0952	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL5	0.0364	-0.7222	0.0901	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL6	0.0076	0.0597	-0.0558	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL5	0.0711	-0.7059	0.1042	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL6	0.0020	0.0474	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL5	0.0514	-0.4385	0.0912	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL3	-0.2266	-3.2724	-1.6917	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL6	0.0075	0.0170	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL3	1.7474	-7.8167	-1.1843	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL6	0.0229	0.0258	0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
147	LL1	-0.1204	-1.6094	-0.0133	0.0000	0.0000	0.0000	0.0000	0.0000
147	LL3	0.9792	-5.8746	1.8559	0.0000	0.0000	0.0000	0.0000	0.0000
148	LL1	-0.9576	-0.2979	-0.3557	0.0000	0.0000	0.0000	0.0000	0.0000
148	LL3	-0.8863	-1.2487	0.7476	0.0000	0.0000	0.0000	0.0000	0.0000
149	LL3	-2.0675	-0.1327	-2.4090	0.0000	0.0000	0.0000	0.0000	0.0000
149	LL6	0.2788	0.0103	0.1564	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL3	-2.4767	-5.1082	-3.5282	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL6	0.4446	-0.0044	0.1658	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL6	0.6225	-0.0172	0.1365	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL1	-3.3881	-5.0171	3.1193	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL6	0.7708	-0.0089	0.0888	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL1	-3.0127	0.1309	1.8135	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL3	-1.8714	-3.2058	-2.0046	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL1	-0.4346	-0.6155	0.2039	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL4	0.6639	-6.9925	-1.8014	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL1	0.2607	-1.9227	0.4051	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL6	0.9580	-0.0347	0.0523	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL3	0.2488	-6.5820	2.6689	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
156	LL2	-2.4372	-0.1573	-0.4237	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL3	-1.6903	-0.9764	0.9453	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL2	-2.2141	-3.2858	-2.0231	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL1	0.9735	0.0524	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL6	0.3620	-0.0987	-0.2228	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL2	-1.7369	-3.7418	2.9304	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL6	-0.5216	0.0237	-0.5925	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL2	-0.9318	0.1228	1.1831	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL6	-2.1806	-2.7246	-2.7676	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL2	0.8313	-0.0957	0.2012	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL6	-1.4422	-3.9890	-0.2841	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL4	1.2113	-1.1318	0.2340	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL3	1.5652	-0.0383	-0.2125	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL6	-4.3156	-0.2923	1.5306	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL5	-0.7321	-0.6136	-1.6490	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL2	1.2322	0.0018	-0.0540	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL5	1.4116	-3.8929	-0.5044	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL6	-1.4422	-3.9890	0.2841	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL3	0.7700	0.0263	-0.1936	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL6	-2.1806	-2.7246	2.7676	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL5	-0.5594	0.1834	-0.8181	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL6	-0.5216	0.0237	0.5925	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL5	-0.9470	-3.4251	-2.7808	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL6	0.3620	-0.0987	0.2228	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL4	0.7073	-0.0166	-0.1664	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL5	-1.5339	-2.7513	1.6464	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL4	0.4371	0.0109	-0.1736	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL6	0.9066	-0.0325	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL5	0.2768	-5.1940	-1.9268	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL1	-0.0229	0.0063	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL4	0.2080	0.0257	-0.0825	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL5	0.4210	-6.9703	1.7381	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL6	0.8727	0.0023	-0.0801	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL5	-1.4119	-2.6044	1.6719	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL5	-2.0872	0.1211	-1.1543	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL1	-0.0252	-0.0015	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL5	-2.0041	-3.1147	-1.9755	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL1	-0.0277	0.0001	-0.0030	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL6	0.4446	-0.0044	-0.1658	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL5	-1.9782	-3.3193	2.1540	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL6	0.2788	0.0103	-0.1564	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL5	-1.8599	-0.1698	1.3187	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL6	0.1400	0.0206	-0.1163	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL5	-0.3955	-0.1616	0.1740	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL6	0.0566	0.0249	-0.0677	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL3	-0.0262	-0.0048	0.0322	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL6	0.0229	0.0258	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL5	0.1428	-0.8111	0.1287	0.0000	0.0000	0.0000	0.0000	0.0000
180	LL6	0.0075	0.0170	-0.0137	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
180	LL5	-0.0304	-0.3195	0.1573	0.0000	0.0000	0.0000	0.0000	0.0000
181	LL3	-0.7684	-0.4119	-0.4643	0.0000	0.0000	0.0000	0.0000	0.0000
181	LL6	0.0048	0.0030	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL3	-3.6209	-11.0923	-6.2701	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL6	0.0183	0.0060	0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL6	0.0637	0.0041	0.0259	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL3	-2.1761	-9.3529	4.3339	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL3	1.0407	0.8302	-0.8033	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL6	0.1949	0.0030	0.0463	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL6	0.4192	0.0019	0.0628	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL5	0.3706	0.7526	0.2107	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL3	-6.5179	-6.3053	-3.7019	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL6	0.6865	-0.0015	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL6	0.9539	-0.0036	0.0532	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL1	-8.0174	-6.5143	3.2701	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL1	-1.8225	1.4021	-0.2588	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL6	1.1678	-0.0009	0.0325	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL4	-0.7493	-0.5178	-0.2391	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL1	-0.6855	-0.3761	0.4920	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL3	-5.9739	-13.2396	-8.0456	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL6	1.4027	-0.0022	0.0309	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL6	1.4511	-0.0057	0.0202	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL3	-4.6122	-11.8525	5.2781	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL3	0.0559	1.2203	-0.2358	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL2	-0.8835	1.4218	0.1060	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL2	-5.1126	-4.3506	-1.7986	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL1	1.5085	-0.0383	0.0537	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL6	0.8407	-0.0478	-0.0597	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL2	-4.2661	-4.1719	2.3506	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL2	0.8931	1.1732	-0.3491	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL3	2.3686	0.3213	-0.0098	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL6	-2.2269	-0.8854	-0.8590	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL2	1.4020	-0.2945	0.3230	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL1	1.2164	0.0795	-0.0180	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL6	-6.4483	-10.6832	1.5097	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL6	-3.4261	1.8078	-1.3974	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL2	2.0232	0.0222	-0.0398	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL3	2.0455	-0.0155	-0.1169	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL6	-3.4261	1.8078	1.3974	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL5	-1.8085	-9.9650	-1.6636	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL4	1.7560	0.1550	-0.0386	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL3	1.1287	-0.0037	-0.0913	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL6	-2.2269	-0.8854	0.8590	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL3	0.8659	0.0105	-0.0437	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL5	2.0602	1.1826	0.3159	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL5	-2.6079	-3.6934	-2.1055	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL6	0.8407	-0.0478	0.0597	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL4	1.0659	-0.0006	-0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL5	-3.8466	-3.8909	1.4101	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
205	LL4	0.6442	-0.0017	-0.0698	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL6	1.4009	-0.0065	0.0226	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL5	-3.9268	-9.5164	-3.7723	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL1	-0.0424	0.0008	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL2	0.1935	0.0061	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL5	-4.6461	-10.4084	6.4036	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL6	1.3156	0.0024	-0.0327	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL5	-1.1783	-0.4836	0.2398	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL6	1.1678	-0.0009	-0.0325	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL5	-0.6465	0.8667	0.1042	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL5	-4.6886	-4.0617	-2.0765	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL1	-0.0465	0.0000	-0.0013	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL6	0.6865	-0.0015	-0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL5	-4.8833	-4.1706	2.3203	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL5	-1.0997	0.7821	-0.1282	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL1	-0.0457	0.0005	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL6	0.1949	0.0030	-0.0463	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL5	-0.2962	-0.0646	0.3141	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL5	-0.2551	-0.9325	-0.4300	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL3	-0.0391	-0.0006	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL6	0.0183	0.0060	-0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL5	-0.3397	-1.1145	0.6227	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL6	0.0048	0.0030	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL5	-0.0670	-0.0382	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL3	0.8424	1.9166	-1.3516	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL6	-10.2951	-0.6382	3.9517	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL6	-2.8251	-8.1083	-5.6526	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL3	-0.0055	1.4241	0.0415	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft) Result Cases

Str1 Max		
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RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
1	Str1 Max	-4.8926	-15.9165	7.9153	0.0000	0.0000	0.0000	0.0000	0.0000
1	Str1 Max	-6.8376	-22.6092	11.0967	0.0000	0.0000	0.0000	0.0000	0.0000
2	Str1 Max	-0.6497	-51.5184	-1.6241	0.0000	0.0000	0.0000	0.0000	0.0000
2	Str1 Max	-0.4895	-43.0008	-0.3753	0.0000	0.0000	0.0000	0.0000	0.0000
3	Str1 Max	-3.1283	-22.2024	-19.1784	0.0000	0.0000	0.0000	0.0000	0.0000
3	Str1 Max	-2.0179	-15.6286	-13.2617	0.0000	0.0000	0.0000	0.0000	0.0000
4	Str1 Max	-3.2080	-18.1531	10.2881	0.0000	0.0000	0.0000	0.0000	0.0000
4	Str1 Max	-3.7960	-25.7338	14.2615	0.0000	0.0000	0.0000	0.0000	0.0000
5	Str1 Max	1.8124	-29.2728	-17.3694	0.0000	0.0000	0.0000	0.0000	0.0000
5	Str1 Max	-1.1011	-20.8118	-12.1244	0.0000	0.0000	0.0000	0.0000	0.0000
6	Str1 Max	27.1896	3.3465	1.1228	0.0000	0.0000	0.0000	0.0000	0.0000
6	Str1 Max	21.4218	3.6353	1.5419	0.0000	0.0000	0.0000	0.0000	0.0000
7	Str1 Max	26.3742	4.0321	-1.7506	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
7	Strl Max	27.2252	3.4934	-1.0382	0.0000	0.0000	0.0000	0.0000	0.0000
8	Strl Max	-3.9572	-19.5416	11.7978	0.0000	0.0000	0.0000	0.0000	0.0000
8	Strl Max	3.7414	-23.0532	14.2876	0.0000	0.0000	0.0000	0.0000	0.0000
9	Strl Max	-3.7056	-26.3065	-10.5666	0.0000	0.0000	0.0000	0.0000	0.0000
9	Strl Max	-3.9849	-19.1258	-6.9086	0.0000	0.0000	0.0000	0.0000	0.0000
10	Strl Max	-3.0925	-16.2018	17.6492	0.0000	0.0000	0.0000	0.0000	0.0000
10	Strl Max	-1.4857	-21.5619	23.7217	0.0000	0.0000	0.0000	0.0000	0.0000
11	Strl Max	-4.4633	-38.1615	-0.7439	0.0000	0.0000	0.0000	0.0000	0.0000
11	Strl Max	-3.3539	-48.4613	0.9071	0.0000	0.0000	0.0000	0.0000	0.0000
12	Strl Max	2.0965	-19.1148	-8.7496	0.0000	0.0000	0.0000	0.0000	0.0000
12	Strl Max	1.1805	-18.8383	-7.2681	0.0000	0.0000	0.0000	0.0000	0.0000
13	Strl Max	23.0355	9.3050	-1.5709	0.0000	0.0000	0.0000	0.0000	0.0000
13	Strl Max	16.6145	9.0537	-0.7812	0.0000	0.0000	0.0000	0.0000	0.0000
14	Strl Max	-4.9211	-26.1940	12.0478	0.0000	0.0000	0.0000	0.0000	0.0000
14	Strl Max	-6.2033	-29.5911	15.6974	0.0000	0.0000	0.0000	0.0000	0.0000
15	Strl Max	-5.8731	-20.1249	-15.8312	0.0000	0.0000	0.0000	0.0000	0.0000
15	Strl Max	-5.4896	-18.1965	-12.3232	0.0000	0.0000	0.0000	0.0000	0.0000
16	Strl Max	-4.6020	-19.2902	12.0596	0.0000	0.0000	0.0000	0.0000	0.0000
16	Strl Max	-6.5030	-23.3860	14.9844	0.0000	0.0000	0.0000	0.0000	0.0000
17	Strl Max	-11.7292	-28.6333	-15.8706	0.0000	0.0000	0.0000	0.0000	0.0000
17	Strl Max	-7.9462	-23.6427	-13.0672	0.0000	0.0000	0.0000	0.0000	0.0000
18	Strl Max	9.8974	5.0910	3.7378	0.0000	0.0000	0.0000	0.0000	0.0000
18	Strl Max	9.7295	5.7711	4.3795	0.0000	0.0000	0.0000	0.0000	0.0000
19	Strl Max	11.8829	6.2553	-5.1409	0.0000	0.0000	0.0000	0.0000	0.0000
19	Strl Max	9.0616	5.1011	-3.8381	0.0000	0.0000	0.0000	0.0000	0.0000
20	Strl Max	-6.2532	-23.1329	12.3659	0.0000	0.0000	0.0000	0.0000	0.0000
20	Strl Max	-7.2494	-28.9317	14.9520	0.0000	0.0000	0.0000	0.0000	0.0000
21	Strl Max	-5.3818	-24.1389	-16.0143	0.0000	0.0000	0.0000	0.0000	0.0000
21	Strl Max	-4.6908	-19.1289	-12.1958	0.0000	0.0000	0.0000	0.0000	0.0000
22	Strl Max	-5.0549	-17.6090	11.9782	0.0000	0.0000	0.0000	0.0000	0.0000
22	Strl Max	-5.9061	-20.1817	15.8472	0.0000	0.0000	0.0000	0.0000	0.0000
23	Strl Max	-3.1031	-30.4783	-15.5242	0.0000	0.0000	0.0000	0.0000	0.0000
23	Strl Max	-4.4339	-23.7297	-12.0493	0.0000	0.0000	0.0000	0.0000	0.0000
24	Strl Max	13.2091	7.7556	1.1532	0.0000	0.0000	0.0000	0.0000	0.0000
24	Strl Max	21.7065	9.9121	1.5342	0.0000	0.0000	0.0000	0.0000	0.0000
25	Strl Max	-1.3963	-15.1872	6.7109	0.0000	0.0000	0.0000	0.0000	0.0000
25	Strl Max	2.1401	-19.6373	8.3215	0.0000	0.0000	0.0000	0.0000	0.0000
26	Strl Max	-3.5730	-48.5760	-0.4843	0.0000	0.0000	0.0000	0.0000	0.0000
26	Strl Max	-4.4496	-38.3174	0.6527	0.0000	0.0000	0.0000	0.0000	0.0000
27	Strl Max	-1.8157	-21.2549	-22.9153	0.0000	0.0000	0.0000	0.0000	0.0000
27	Strl Max	-2.3278	-15.9615	-17.5818	0.0000	0.0000	0.0000	0.0000	0.0000
28	Strl Max	-3.9138	-19.2995	6.9465	0.0000	0.0000	0.0000	0.0000	0.0000
28	Strl Max	-3.9059	-25.1250	10.0730	0.0000	0.0000	0.0000	0.0000	0.0000
29	Strl Max	2.7957	-24.4600	-13.6636	0.0000	0.0000	0.0000	0.0000	0.0000
29	Strl Max	-0.6501	-19.4126	-11.3208	0.0000	0.0000	0.0000	0.0000	0.0000
30	Strl Max	15.0494	3.1183	1.2076	0.0000	0.0000	0.0000	0.0000	0.0000
30	Strl Max	23.9389	3.9822	1.6004	0.0000	0.0000	0.0000	0.0000	0.0000
31	Strl Max	15.2904	2.7880	-1.3721	0.0000	0.0000	0.0000	0.0000	0.0000
31	Strl Max	23.0531	3.1034	-1.1897	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
32	Strl Max	0.7205	-20.7052	12.1785	0.0000	0.0000	0.0000	0.0000	0.0000
32	Strl Max	2.5493	-24.5789	15.0391	0.0000	0.0000	0.0000	0.0000	0.0000
33	Strl Max	-2.9033	-21.6815	-11.4361	0.0000	0.0000	0.0000	0.0000	0.0000
33	Strl Max	-3.0552	-18.1475	-10.1672	0.0000	0.0000	0.0000	0.0000	0.0000
34	Strl Max	-2.0411	-15.3692	13.2167	0.0000	0.0000	0.0000	0.0000	0.0000
34	Strl Max	-2.4781	-16.6303	15.3067	0.0000	0.0000	0.0000	0.0000	0.0000
35	Strl Max	-0.4865	-42.3617	0.4667	0.0000	0.0000	0.0000	0.0000	0.0000
35	Strl Max	-0.5444	-46.3533	0.9286	0.0000	0.0000	0.0000	0.0000	0.0000
36	Strl Max	-5.0577	-16.8448	-8.2158	0.0000	0.0000	0.0000	0.0000	0.0000
36	Strl Max	-4.7873	-15.6347	-7.7504	0.0000	0.0000	0.0000	0.0000	0.0000
37	Strl Max	4.1738	-19.4095	4.0933	0.0000	0.0000	0.0000	0.0000	0.0000
37	Strl Max	5.9110	-27.3638	5.6343	0.0000	0.0000	0.0000	0.0000	0.0000
38	Strl Max	6.9204	-29.8391	-1.4076	0.0000	0.0000	0.0000	0.0000	0.0000
38	Strl Max	5.8527	-25.3156	-0.5076	0.0000	0.0000	0.0000	0.0000	0.0000
39	Strl Max	-1.3624	-22.1914	-4.5818	0.0000	0.0000	0.0000	0.0000	0.0000
39	Strl Max	-1.2181	-18.5111	-2.8018	0.0000	0.0000	0.0000	0.0000	0.0000
40	Strl Max	0.4854	-23.0278	1.2045	0.0000	0.0000	0.0000	0.0000	0.0000
40	Strl Max	-0.7386	-24.4829	3.1218	0.0000	0.0000	0.0000	0.0000	0.0000
41	Strl Max	6.5783	-21.0234	-14.8014	0.0000	0.0000	0.0000	0.0000	0.0000
41	Strl Max	3.4834	-14.8986	-9.6039	0.0000	0.0000	0.0000	0.0000	0.0000
42	Strl Max	7.3271	-3.8543	-9.9659	0.0000	0.0000	0.0000	0.0000	0.0000
42	Strl Max	3.1969	-2.4393	-6.4137	0.0000	0.0000	0.0000	0.0000	0.0000
43	Strl Max	2.3616	-1.4653	6.0904	0.0000	0.0000	0.0000	0.0000	0.0000
43	Strl Max	8.6665	-2.4993	7.9322	0.0000	0.0000	0.0000	0.0000	0.0000
44	Strl Max	1.9819	-14.2849	10.2018	0.0000	0.0000	0.0000	0.0000	0.0000
44	Strl Max	6.1072	-17.0701	14.2532	0.0000	0.0000	0.0000	0.0000	0.0000
45	Strl Max	-0.1423	-29.5131	-1.5479	0.0000	0.0000	0.0000	0.0000	0.0000
45	Strl Max	0.0329	-26.2339	0.5271	0.0000	0.0000	0.0000	0.0000	0.0000
46	Strl Max	-2.5515	-27.8527	2.4196	0.0000	0.0000	0.0000	0.0000	0.0000
46	Strl Max	-2.9478	-23.5555	3.4204	0.0000	0.0000	0.0000	0.0000	0.0000
47	Strl Max	3.7338	-32.5158	2.4114	0.0000	0.0000	0.0000	0.0000	0.0000
47	Strl Max	2.0682	-28.8963	3.5688	0.0000	0.0000	0.0000	0.0000	0.0000
48	Strl Max	4.5661	-16.2660	-12.6521	0.0000	0.0000	0.0000	0.0000	0.0000
48	Strl Max	1.5290	-14.4336	-9.6028	0.0000	0.0000	0.0000	0.0000	0.0000
49	Strl Max	-3.1710	-0.0265	-0.5078	0.0000	0.0000	0.0000	0.0000	0.0000
49	Strl Max	-2.0674	0.0513	1.5693	0.0000	0.0000	0.0000	0.0000	0.0000
50	Strl Max	3.5023	-18.2655	11.4526	0.0000	0.0000	0.0000	0.0000	0.0000
50	Strl Max	5.2456	-21.3792	15.7311	0.0000	0.0000	0.0000	0.0000	0.0000
51	Strl Max	-4.2711	-21.9805	-7.0964	0.0000	0.0000	0.0000	0.0000	0.0000
51	Strl Max	-3.4863	-22.6528	-3.2058	0.0000	0.0000	0.0000	0.0000	0.0000
52	Strl Max	-1.0877	-24.7458	1.8914	0.0000	0.0000	0.0000	0.0000	0.0000
52	Strl Max	-3.9473	-22.0784	5.2566	0.0000	0.0000	0.0000	0.0000	0.0000
53	Strl Max	6.7523	-22.4193	-11.3545	0.0000	0.0000	0.0000	0.0000	0.0000
53	Strl Max	1.5568	-20.2451	-9.0042	0.0000	0.0000	0.0000	0.0000	0.0000
54	Strl Max	-3.9206	0.6128	-6.8110	0.0000	0.0000	0.0000	0.0000	0.0000
54	Strl Max	-3.2332	0.5529	-4.6143	0.0000	0.0000	0.0000	0.0000	0.0000
55	Strl Max	-2.0902	0.5607	4.3407	0.0000	0.0000	0.0000	0.0000	0.0000
55	Strl Max	-3.1386	0.5799	5.2948	0.0000	0.0000	0.0000	0.0000	0.0000
56	Strl Max	1.7843	-18.6973	8.4938	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
56	Strl Max	6.7455	-22.4153	11.3608	0.0000	0.0000	0.0000	0.0000	0.0000
57	Strl Max	-3.5039	-25.4207	-4.5427	0.0000	0.0000	0.0000	0.0000	0.0000
57	Strl Max	-1.1095	-24.7368	-1.8794	0.0000	0.0000	0.0000	0.0000	0.0000
58	Strl Max	-4.2358	-18.9165	4.3960	0.0000	0.0000	0.0000	0.0000	0.0000
58	Strl Max	-4.2923	-22.0227	7.1201	0.0000	0.0000	0.0000	0.0000	0.0000
59	Strl Max	6.3131	-21.9807	-15.7405	0.0000	0.0000	0.0000	0.0000	0.0000
59	Strl Max	3.4824	-18.3173	-11.4923	0.0000	0.0000	0.0000	0.0000	0.0000
60	Strl Max	-2.6762	-0.3446	-0.5370	0.0000	0.0000	0.0000	0.0000	0.0000
60	Strl Max	-3.1824	-0.0155	0.4609	0.0000	0.0000	0.0000	0.0000	0.0000
61	Strl Max	1.9095	-12.9304	9.2756	0.0000	0.0000	0.0000	0.0000	0.0000
61	Strl Max	4.4480	-16.7967	12.0502	0.0000	0.0000	0.0000	0.0000	0.0000
62	Strl Max	4.1735	-34.0994	-2.8394	0.0000	0.0000	0.0000	0.0000	0.0000
62	Strl Max	2.3211	-26.0519	-2.3263	0.0000	0.0000	0.0000	0.0000	0.0000
63	Strl Max	-2.4749	-27.9682	-2.7233	0.0000	0.0000	0.0000	0.0000	0.0000
63	Strl Max	-2.4376	-20.8048	-2.1861	0.0000	0.0000	0.0000	0.0000	0.0000
64	Strl Max	-1.6633	-22.4287	0.7680	0.0000	0.0000	0.0000	0.0000	0.0000
64	Strl Max	0.0976	-29.3423	1.2251	0.0000	0.0000	0.0000	0.0000	0.0000
65	Strl Max	5.0417	-17.9613	-12.6876	0.0000	0.0000	0.0000	0.0000	0.0000
65	Strl Max	3.1505	-14.2203	-10.1675	0.0000	0.0000	0.0000	0.0000	0.0000
66	Strl Max	6.5443	-1.8334	-6.8747	0.0000	0.0000	0.0000	0.0000	0.0000
66	Strl Max	3.9419	-1.3994	-5.7649	0.0000	0.0000	0.0000	0.0000	0.0000
67	Strl Max	3.6887	-2.5190	6.5236	0.0000	0.0000	0.0000	0.0000	0.0000
67	Strl Max	7.1622	-3.4245	8.7423	0.0000	0.0000	0.0000	0.0000	0.0000
68	Strl Max	3.7997	-14.9039	9.8515	0.0000	0.0000	0.0000	0.0000	0.0000
68	Strl Max	6.2109	-17.8671	13.2287	0.0000	0.0000	0.0000	0.0000	0.0000
69	Strl Max	-0.6673	-18.4956	-2.5177	0.0000	0.0000	0.0000	0.0000	0.0000
69	Strl Max	0.0451	-21.6019	-1.8072	0.0000	0.0000	0.0000	0.0000	0.0000
70	Strl Max	-1.2190	-18.2277	2.8736	0.0000	0.0000	0.0000	0.0000	0.0000
70	Strl Max	-1.4964	-19.9752	3.6705	0.0000	0.0000	0.0000	0.0000	0.0000
71	Strl Max	5.7503	-24.8613	0.5910	0.0000	0.0000	0.0000	0.0000	0.0000
71	Strl Max	6.2057	-26.8346	1.1272	0.0000	0.0000	0.0000	0.0000	0.0000
72	Strl Max	4.3900	-20.2399	-4.1434	0.0000	0.0000	0.0000	0.0000	0.0000
72	Strl Max	4.0965	-19.0040	-3.9901	0.0000	0.0000	0.0000	0.0000	0.0000
73	Strl Max	1.3773	-23.1429	-0.0377	0.0000	0.0000	0.0000	0.0000	0.0000
73	Strl Max	1.2191	-20.4119	0.1957	0.0000	0.0000	0.0000	0.0000	0.0000
74	Strl Max	4.0330	-24.3576	0.3615	0.0000	0.0000	0.0000	0.0000	0.0000
74	Strl Max	4.6495	-27.5518	1.0448	0.0000	0.0000	0.0000	0.0000	0.0000
75	Strl Max	2.4291	-23.0441	0.4798	0.0000	0.0000	0.0000	0.0000	0.0000
75	Strl Max	2.8218	-25.7831	1.8856	0.0000	0.0000	0.0000	0.0000	0.0000
76	Strl Max	0.3686	-18.8978	-2.1869	0.0000	0.0000	0.0000	0.0000	0.0000
76	Strl Max	0.1674	-15.6628	0.4766	0.0000	0.0000	0.0000	0.0000	0.0000
77	Strl Max	0.3363	-13.7774	-14.3802	0.0000	0.0000	0.0000	0.0000	0.0000
77	Strl Max	-0.3129	-10.6435	-9.0129	0.0000	0.0000	0.0000	0.0000	0.0000
78	Strl Max	1.3817	-11.2350	-11.4714	0.0000	0.0000	0.0000	0.0000	0.0000
78	Strl Max	0.2560	-7.6049	-6.9669	0.0000	0.0000	0.0000	0.0000	0.0000
79	Strl Max	-0.3649	-6.4654	7.1707	0.0000	0.0000	0.0000	0.0000	0.0000
79	Strl Max	1.2329	-9.7520	9.7813	0.0000	0.0000	0.0000	0.0000	0.0000
80	Strl Max	-0.8691	-10.6906	9.4188	0.0000	0.0000	0.0000	0.0000	0.0000
80	Strl Max	-0.2967	-12.9658	13.9839	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
81	Strl Max	2.3393	-26.1363	-0.2270	0.0000	0.0000	0.0000	0.0000	0.0000
81	Strl Max	2.0206	-22.5175	2.3726	0.0000	0.0000	0.0000	0.0000	0.0000
82	Strl Max	4.3809	-31.4440	-1.0679	0.0000	0.0000	0.0000	0.0000	0.0000
82	Strl Max	3.3095	-26.4252	0.8820	0.0000	0.0000	0.0000	0.0000	0.0000
83	Strl Max	4.6016	-27.8253	-1.3242	0.0000	0.0000	0.0000	0.0000	0.0000
83	Strl Max	4.0302	-24.9977	0.4961	0.0000	0.0000	0.0000	0.0000	0.0000
84	Strl Max	-1.0043	-13.3109	-9.0774	0.0000	0.0000	0.0000	0.0000	0.0000
84	Strl Max	-1.0937	-14.0494	-5.8267	0.0000	0.0000	0.0000	0.0000	0.0000
85	Strl Max	-1.3915	-8.2072	-2.7718	0.0000	0.0000	0.0000	0.0000	0.0000
85	Strl Max	-2.3976	-6.2419	-0.4805	0.0000	0.0000	0.0000	0.0000	0.0000
86	Strl Max	0.4396	-15.6470	10.0563	0.0000	0.0000	0.0000	0.0000	0.0000
86	Strl Max	2.2844	-19.1433	14.8344	0.0000	0.0000	0.0000	0.0000	0.0000
87	Strl Max	-1.1603	-17.8980	-1.3394	0.0000	0.0000	0.0000	0.0000	0.0000
87	Strl Max	-0.7367	-18.1885	4.1531	0.0000	0.0000	0.0000	0.0000	0.0000
88	Strl Max	1.2511	-23.6423	-6.4721	0.0000	0.0000	0.0000	0.0000	0.0000
88	Strl Max	-0.0069	-20.4886	-1.8084	0.0000	0.0000	0.0000	0.0000	0.0000
89	Strl Max	3.4110	-20.7987	-8.6385	0.0000	0.0000	0.0000	0.0000	0.0000
89	Strl Max	1.7699	-17.6647	-6.1907	0.0000	0.0000	0.0000	0.0000	0.0000
90	Strl Max	-4.8715	-3.8290	-4.2245	0.0000	0.0000	0.0000	0.0000	0.0000
90	Strl Max	-4.1573	-3.6830	-2.1431	0.0000	0.0000	0.0000	0.0000	0.0000
91	Strl Max	-4.7798	-4.3379	1.3452	0.0000	0.0000	0.0000	0.0000	0.0000
91	Strl Max	-3.5125	-4.1628	2.8104	0.0000	0.0000	0.0000	0.0000	0.0000
92	Strl Max	2.0422	-16.6507	5.8375	0.0000	0.0000	0.0000	0.0000	0.0000
92	Strl Max	3.4076	-20.7947	8.6487	0.0000	0.0000	0.0000	0.0000	0.0000
93	Strl Max	0.5126	-18.8196	2.9594	0.0000	0.0000	0.0000	0.0000	0.0000
93	Strl Max	1.2427	-23.6407	6.4894	0.0000	0.0000	0.0000	0.0000	0.0000
94	Strl Max	-1.0429	-19.9703	-2.2397	0.0000	0.0000	0.0000	0.0000	0.0000
94	Strl Max	-1.1617	-17.9264	1.3529	0.0000	0.0000	0.0000	0.0000	0.0000
95	Strl Max	1.7265	-19.5415	-14.6650	0.0000	0.0000	0.0000	0.0000	0.0000
95	Strl Max	0.4381	-15.6783	-10.0898	0.0000	0.0000	0.0000	0.0000	0.0000
96	Strl Max	-1.9020	-5.9469	1.1143	0.0000	0.0000	0.0000	0.0000	0.0000
96	Strl Max	-2.3048	-5.7828	2.0764	0.0000	0.0000	0.0000	0.0000	0.0000
97	Strl Max	-1.0762	-10.6593	5.9814	0.0000	0.0000	0.0000	0.0000	0.0000
97	Strl Max	-1.1452	-13.9648	8.0992	0.0000	0.0000	0.0000	0.0000	0.0000
98	Strl Max	3.8235	-22.3762	0.3493	0.0000	0.0000	0.0000	0.0000	0.0000
98	Strl Max	5.0054	-29.7559	0.8485	0.0000	0.0000	0.0000	0.0000	0.0000
99	Strl Max	2.8952	-23.7458	0.1130	0.0000	0.0000	0.0000	0.0000	0.0000
99	Strl Max	4.3214	-31.5164	0.6838	0.0000	0.0000	0.0000	0.0000	0.0000
100	Strl Max	1.6379	-19.7825	-0.4357	0.0000	0.0000	0.0000	0.0000	0.0000
100	Strl Max	2.2542	-26.0354	-0.1280	0.0000	0.0000	0.0000	0.0000	0.0000
101	Strl Max	-0.9472	-13.6293	-11.8868	0.0000	0.0000	0.0000	0.0000	0.0000
101	Strl Max	-0.6620	-10.6927	-9.4669	0.0000	0.0000	0.0000	0.0000	0.0000
102	Strl Max	0.1924	-8.4596	-8.6387	0.0000	0.0000	0.0000	0.0000	0.0000
102	Strl Max	-0.0371	-6.5351	-6.9441	0.0000	0.0000	0.0000	0.0000	0.0000
103	Strl Max	0.4044	-7.8049	7.1251	0.0000	0.0000	0.0000	0.0000	0.0000
103	Strl Max	1.3359	-10.1447	9.8674	0.0000	0.0000	0.0000	0.0000	0.0000
104	Strl Max	-0.2288	-10.6864	9.3261	0.0000	0.0000	0.0000	0.0000	0.0000
104	Strl Max	0.2091	-12.9927	12.9335	0.0000	0.0000	0.0000	0.0000	0.0000
105	Strl Max	0.1833	-15.5081	-0.1812	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
105	Strl Max	0.3315	-17.6578	1.3162	0.0000	0.0000	0.0000	0.0000	0.0000
106	Strl Max	2.0975	-19.3776	-1.5100	0.0000	0.0000	0.0000	0.0000	0.0000
106	Strl Max	2.1202	-21.0373	-0.9943	0.0000	0.0000	0.0000	0.0000	0.0000
107	Strl Max	3.4791	-20.7001	-0.8538	0.0000	0.0000	0.0000	0.0000	0.0000
107	Strl Max	3.5950	-22.1037	-0.6192	0.0000	0.0000	0.0000	0.0000	0.0000
108	Strl Max	1.1888	-19.9305	-0.1697	0.0000	0.0000	0.0000	0.0000	0.0000
108	Strl Max	1.2438	-20.9918	-0.0661	0.0000	0.0000	0.0000	0.0000	0.0000
109	Strl Max	4.3605	-26.8704	-4.5137	0.0000	0.0000	0.0000	0.0000	0.0000
109	Strl Max	3.1381	-19.2305	-3.1250	0.0000	0.0000	0.0000	0.0000	0.0000
110	Strl Max	5.6154	-27.9094	-1.2587	0.0000	0.0000	0.0000	0.0000	0.0000
110	Strl Max	5.2802	-24.8679	-0.5196	0.0000	0.0000	0.0000	0.0000	0.0000
111	Strl Max	3.8921	-24.0847	3.4767	0.0000	0.0000	0.0000	0.0000	0.0000
111	Strl Max	5.1433	-29.8443	5.2592	0.0000	0.0000	0.0000	0.0000	0.0000
112	Strl Max	-2.1809	-13.0528	0.0429	0.0000	0.0000	0.0000	0.0000	0.0000
112	Strl Max	-1.3338	-14.7014	2.3311	0.0000	0.0000	0.0000	0.0000	0.0000
113	Strl Max	-6.7373	-8.4357	-14.1272	0.0000	0.0000	0.0000	0.0000	0.0000
113	Strl Max	-3.8535	-6.2914	-8.8017	0.0000	0.0000	0.0000	0.0000	0.0000
114	Strl Max	-2.9188	-19.2400	-14.2103	0.0000	0.0000	0.0000	0.0000	0.0000
114	Strl Max	-1.2516	-13.0723	-8.8109	0.0000	0.0000	0.0000	0.0000	0.0000
115	Strl Max	-1.6366	-11.7506	9.2335	0.0000	0.0000	0.0000	0.0000	0.0000
115	Strl Max	-4.0913	-17.6817	12.8681	0.0000	0.0000	0.0000	0.0000	0.0000
116	Strl Max	-3.4705	-6.1740	8.2883	0.0000	0.0000	0.0000	0.0000	0.0000
116	Strl Max	-6.6680	-7.5746	12.6199	0.0000	0.0000	0.0000	0.0000	0.0000
117	Strl Max	1.5813	-22.5691	-4.6365	0.0000	0.0000	0.0000	0.0000	0.0000
117	Strl Max	1.2087	-18.6896	-1.4431	0.0000	0.0000	0.0000	0.0000	0.0000
118	Strl Max	8.8246	-35.2215	-2.2808	0.0000	0.0000	0.0000	0.0000	0.0000
118	Strl Max	7.9520	-29.0102	-0.2893	0.0000	0.0000	0.0000	0.0000	0.0000
119	Strl Max	4.3124	-26.4493	1.7038	0.0000	0.0000	0.0000	0.0000	0.0000
119	Strl Max	5.0045	-30.5790	3.4701	0.0000	0.0000	0.0000	0.0000	0.0000
120	Strl Max	-5.1574	-9.8282	-5.1741	0.0000	0.0000	0.0000	0.0000	0.0000
120	Strl Max	-4.2114	-11.0427	-1.8603	0.0000	0.0000	0.0000	0.0000	0.0000
121	Strl Max	-4.4356	-14.3866	-6.8443	0.0000	0.0000	0.0000	0.0000	0.0000
121	Strl Max	-3.3292	-11.0321	-4.3354	0.0000	0.0000	0.0000	0.0000	0.0000
122	Strl Max	1.3311	-15.5438	11.1048	0.0000	0.0000	0.0000	0.0000	0.0000
122	Strl Max	0.8503	-20.5632	16.0924	0.0000	0.0000	0.0000	0.0000	0.0000
123	Strl Max	-3.6024	-10.5923	0.0687	0.0000	0.0000	0.0000	0.0000	0.0000
123	Strl Max	-3.3689	-10.5886	5.7490	0.0000	0.0000	0.0000	0.0000	0.0000
124	Strl Max	2.2916	-21.4305	-11.9303	0.0000	0.0000	0.0000	0.0000	0.0000
124	Strl Max	2.9824	-17.4404	-6.8093	0.0000	0.0000	0.0000	0.0000	0.0000
125	Strl Max	1.2291	-23.3958	-4.8287	0.0000	0.0000	0.0000	0.0000	0.0000
125	Strl Max	3.2773	-18.8619	-3.1404	0.0000	0.0000	0.0000	0.0000	0.0000
126	Strl Max	-5.6673	-4.7961	-0.0254	0.0000	0.0000	0.0000	0.0000	0.0000
126	Strl Max	-8.7812	-5.4873	1.4837	0.0000	0.0000	0.0000	0.0000	0.0000
127	Strl Max	-5.6344	-5.7259	-2.8467	0.0000	0.0000	0.0000	0.0000	0.0000
127	Strl Max	-4.6828	-4.2933	-0.8340	0.0000	0.0000	0.0000	0.0000	0.0000
128	Strl Max	3.3348	-18.1868	2.8182	0.0000	0.0000	0.0000	0.0000	0.0000
128	Strl Max	1.2340	-23.3932	4.8407	0.0000	0.0000	0.0000	0.0000	0.0000
129	Strl Max	3.5489	-16.6409	7.5122	0.0000	0.0000	0.0000	0.0000	0.0000
129	Strl Max	2.2999	-21.4310	11.9462	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
130	Strl Max	-3.7290	-11.7145	-3.9415	0.0000	0.0000	0.0000	0.0000	0.0000
130	Strl Max	-3.5872	-10.6078	-0.0616	0.0000	0.0000	0.0000	0.0000	0.0000
131	Strl Max	1.2609	-20.2696	-15.9323	0.0000	0.0000	0.0000	0.0000	0.0000
131	Strl Max	1.3400	-15.5600	-11.1309	0.0000	0.0000	0.0000	0.0000	0.0000
132	Strl Max	-2.0747	-10.3436	4.2307	0.0000	0.0000	0.0000	0.0000	0.0000
132	Strl Max	-4.3752	-13.7150	5.9581	0.0000	0.0000	0.0000	0.0000	0.0000
133	Strl Max	-2.6849	-8.0359	2.8266	0.0000	0.0000	0.0000	0.0000	0.0000
133	Strl Max	-5.2077	-10.5885	3.9861	0.0000	0.0000	0.0000	0.0000	0.0000
134	Strl Max	4.5528	-28.9549	-2.3979	0.0000	0.0000	0.0000	0.0000	0.0000
134	Strl Max	4.3025	-21.7359	-1.7481	0.0000	0.0000	0.0000	0.0000	0.0000
135	Strl Max	8.0434	-26.3810	1.1882	0.0000	0.0000	0.0000	0.0000	0.0000
135	Strl Max	8.5000	-35.2437	1.9407	0.0000	0.0000	0.0000	0.0000	0.0000
136	Strl Max	2.4722	-16.9939	2.8293	0.0000	0.0000	0.0000	0.0000	0.0000
136	Strl Max	1.1852	-22.5383	4.3298	0.0000	0.0000	0.0000	0.0000	0.0000
137	Strl Max	-6.8177	-7.9006	-10.5688	0.0000	0.0000	0.0000	0.0000	0.0000
137	Strl Max	-4.3338	-6.1986	-8.3549	0.0000	0.0000	0.0000	0.0000	0.0000
138	Strl Max	-3.7890	-15.5633	-11.6536	0.0000	0.0000	0.0000	0.0000	0.0000
138	Strl Max	-2.3206	-12.0017	-9.1246	0.0000	0.0000	0.0000	0.0000	0.0000
139	Strl Max	-1.4399	-13.4227	9.0137	0.0000	0.0000	0.0000	0.0000	0.0000
139	Strl Max	-2.9267	-17.4809	12.2425	0.0000	0.0000	0.0000	0.0000	0.0000
140	Strl Max	-4.0321	-6.3555	9.1031	0.0000	0.0000	0.0000	0.0000	0.0000
140	Strl Max	-5.7151	-7.8712	12.5892	0.0000	0.0000	0.0000	0.0000	0.0000
141	Strl Max	-0.9163	-11.0875	-1.8971	0.0000	0.0000	0.0000	0.0000	0.0000
141	Strl Max	-1.6657	-12.2063	-0.6058	0.0000	0.0000	0.0000	0.0000	0.0000
142	Strl Max	3.6719	-20.7952	-4.0111	0.0000	0.0000	0.0000	0.0000	0.0000
142	Strl Max	3.6970	-22.1649	-3.6869	0.0000	0.0000	0.0000	0.0000	0.0000
143	Strl Max	5.1140	-24.2596	0.5604	0.0000	0.0000	0.0000	0.0000	0.0000
143	Strl Max	5.2251	-25.5994	0.8405	0.0000	0.0000	0.0000	0.0000	0.0000
144	Strl Max	3.0432	-18.7371	3.0538	0.0000	0.0000	0.0000	0.0000	0.0000
144	Strl Max	3.1296	-19.5875	3.2523	0.0000	0.0000	0.0000	0.0000	0.0000
145	Strl Max	-1.3159	-20.4363	-10.3024	0.0000	0.0000	0.0000	0.0000	0.0000
145	Strl Max	-0.9062	-14.6799	-7.3180	0.0000	0.0000	0.0000	0.0000	0.0000
146	Strl Max	11.0330	-48.3692	-6.9229	0.0000	0.0000	0.0000	0.0000	0.0000
146	Strl Max	8.0152	-34.6447	-4.7841	0.0000	0.0000	0.0000	0.0000	0.0000
147	Strl Max	4.7950	-28.8362	8.9858	0.0000	0.0000	0.0000	0.0000	0.0000
147	Strl Max	6.7192	-36.3004	12.2570	0.0000	0.0000	0.0000	0.0000	0.0000
148	Strl Max	-4.0613	-6.3647	3.7925	0.0000	0.0000	0.0000	0.0000	0.0000
148	Strl Max	-3.9366	-8.0288	5.7232	0.0000	0.0000	0.0000	0.0000	0.0000
149	Strl Max	-8.5413	-0.9547	-12.5194	0.0000	0.0000	0.0000	0.0000	0.0000
149	Strl Max	-4.4353	-0.7044	-8.0299	0.0000	0.0000	0.0000	0.0000	0.0000
150	Strl Max	-9.9057	-27.8553	-18.0356	0.0000	0.0000	0.0000	0.0000	0.0000
150	Strl Max	-4.7933	-18.9236	-11.5710	0.0000	0.0000	0.0000	0.0000	0.0000
151	Strl Max	-4.0505	-17.4843	11.5423	0.0000	0.0000	0.0000	0.0000	0.0000
151	Strl Max	-11.0689	-26.2341	16.7621	0.0000	0.0000	0.0000	0.0000	0.0000
152	Strl Max	-3.3270	0.0703	7.1070	0.0000	0.0000	0.0000	0.0000	0.0000
152	Strl Max	-9.9480	0.3150	10.1251	0.0000	0.0000	0.0000	0.0000	0.0000
153	Strl Max	-3.1588	-19.1033	-11.5170	0.0000	0.0000	0.0000	0.0000	0.0000
153	Strl Max	-0.6442	-14.5702	-7.6520	0.0000	0.0000	0.0000	0.0000	0.0000
154	Strl Max	10.4203	-47.4711	-11.6189	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
154	Strl Max	9.7146	-38.5989	-7.7574	0.0000	0.0000	0.0000	0.0000	0.0000
155	Strl Max	10.2327	-26.4528	9.4664	0.0000	0.0000	0.0000	0.0000	0.0000
155	Strl Max	8.9916	-37.9106	14.0453	0.0000	0.0000	0.0000	0.0000	0.0000
156	Strl Max	-10.5694	-3.3525	-0.8714	0.0000	0.0000	0.0000	0.0000	0.0000
156	Strl Max	-9.2624	-4.7860	1.5243	0.0000	0.0000	0.0000	0.0000	0.0000
157	Strl Max	-6.2151	-19.8231	-12.3899	0.0000	0.0000	0.0000	0.0000	0.0000
157	Strl Max	-0.6369	-13.9812	-8.8540	0.0000	0.0000	0.0000	0.0000	0.0000
158	Strl Max	0.3353	-17.8034	13.1205	0.0000	0.0000	0.0000	0.0000	0.0000
158	Strl Max	-3.3379	-24.1787	18.6385	0.0000	0.0000	0.0000	0.0000	0.0000
159	Strl Max	-0.4127	0.2672	1.9511	0.0000	0.0000	0.0000	0.0000	0.0000
159	Strl Max	-1.1305	0.4406	5.0584	0.0000	0.0000	0.0000	0.0000	0.0000
160	Strl Max	-3.6029	-20.1673	-17.7772	0.0000	0.0000	0.0000	0.0000	0.0000
160	Strl Max	1.6680	-15.5667	-12.5818	0.0000	0.0000	0.0000	0.0000	0.0000
161	Strl Max	3.5712	-29.8095	-1.0326	0.0000	0.0000	0.0000	0.0000	0.0000
161	Strl Max	8.2149	-24.8093	-0.1258	0.0000	0.0000	0.0000	0.0000	0.0000
162	Strl Max	-6.3213	-1.9733	7.7215	0.0000	0.0000	0.0000	0.0000	0.0000
162	Strl Max	-16.6127	-2.4176	10.7719	0.0000	0.0000	0.0000	0.0000	0.0000
163	Strl Max	-10.3381	-2.9800	-10.9717	0.0000	0.0000	0.0000	0.0000	0.0000
163	Strl Max	-6.9006	-1.9032	-8.1803	0.0000	0.0000	0.0000	0.0000	0.0000
164	Strl Max	8.5792	-29.6401	-0.3379	0.0000	0.0000	0.0000	0.0000	0.0000
164	Strl Max	3.5850	-29.8084	1.0420	0.0000	0.0000	0.0000	0.0000	0.0000
165	Strl Max	1.5855	-15.3534	12.6070	0.0000	0.0000	0.0000	0.0000	0.0000
165	Strl Max	-3.5781	-20.1675	17.7892	0.0000	0.0000	0.0000	0.0000	0.0000
166	Strl Max	-0.4466	0.5405	-4.4153	0.0000	0.0000	0.0000	0.0000	0.0000
166	Strl Max	-0.3803	0.2611	-1.9468	0.0000	0.0000	0.0000	0.0000	0.0000
167	Strl Max	-1.9347	-23.6307	-18.3943	0.0000	0.0000	0.0000	0.0000	0.0000
167	Strl Max	0.3562	-17.8095	-13.1381	0.0000	0.0000	0.0000	0.0000	0.0000
168	Strl Max	-1.1186	-14.1007	8.5308	0.0000	0.0000	0.0000	0.0000	0.0000
168	Strl Max	-5.0408	-18.8865	11.7031	0.0000	0.0000	0.0000	0.0000	0.0000
169	Strl Max	-5.6038	-3.0624	-0.1998	0.0000	0.0000	0.0000	0.0000	0.0000
169	Strl Max	-4.7821	-3.1384	0.2252	0.0000	0.0000	0.0000	0.0000	0.0000
170	Strl Max	8.9298	-35.4974	-12.8009	0.0000	0.0000	0.0000	0.0000	0.0000
170	Strl Max	8.4054	-26.3968	-9.4410	0.0000	0.0000	0.0000	0.0000	0.0000
171	Strl Max	9.4737	-35.2275	8.2288	0.0000	0.0000	0.0000	0.0000	0.0000
171	Strl Max	9.8464	-47.4705	11.4149	0.0000	0.0000	0.0000	0.0000	0.0000
172	Strl Max	1.4570	-13.4929	7.7860	0.0000	0.0000	0.0000	0.0000	0.0000
172	Strl Max	-2.5410	-18.0548	10.8521	0.0000	0.0000	0.0000	0.0000	0.0000
173	Strl Max	-8.7998	0.3102	-9.1599	0.0000	0.0000	0.0000	0.0000	0.0000
173	Strl Max	-5.1913	0.0957	-7.1417	0.0000	0.0000	0.0000	0.0000	0.0000
174	Strl Max	-9.1811	-23.3794	-15.0738	0.0000	0.0000	0.0000	0.0000	0.0000
174	Strl Max	-5.7224	-17.9286	-11.6220	0.0000	0.0000	0.0000	0.0000	0.0000
175	Strl Max	-5.3366	-19.4132	11.8814	0.0000	0.0000	0.0000	0.0000	0.0000
175	Strl Max	-9.5765	-25.2142	15.9412	0.0000	0.0000	0.0000	0.0000	0.0000
176	Strl Max	-4.9710	-0.7420	8.1984	0.0000	0.0000	0.0000	0.0000	0.0000
176	Strl Max	-8.7137	-1.0572	10.7798	0.0000	0.0000	0.0000	0.0000	0.0000
177	Strl Max	-2.2384	-5.6631	-4.3685	0.0000	0.0000	0.0000	0.0000	0.0000
177	Strl Max	-3.1755	-5.9821	-3.8605	0.0000	0.0000	0.0000	0.0000	0.0000
178	Strl Max	4.8894	-25.3107	-8.7765	0.0000	0.0000	0.0000	0.0000	0.0000
178	Strl Max	4.7445	-25.3627	-8.6016	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
179	Strl Max	7.7660	-33.6974	4.6734	0.0000	0.0000	0.0000	0.0000	0.0000
179	Strl Max	7.9758	-35.1621	4.9650	0.0000	0.0000	0.0000	0.0000	0.0000
180	Strl Max	-0.8870	-14.2847	7.1158	0.0000	0.0000	0.0000	0.0000	0.0000
180	Strl Max	-0.9533	-14.8736	7.4151	0.0000	0.0000	0.0000	0.0000	0.0000
181	Strl Max	-4.6919	-2.6522	-2.8417	0.0000	0.0000	0.0000	0.0000	0.0000
181	Strl Max	-3.3387	-1.9262	-2.0245	0.0000	0.0000	0.0000	0.0000	0.0000
182	Strl Max	-22.1577	-68.4841	-38.5447	0.0000	0.0000	0.0000	0.0000	0.0000
182	Strl Max	-15.7892	-49.0621	-27.5501	0.0000	0.0000	0.0000	0.0000	0.0000
183	Strl Max	-8.8469	-41.4235	19.4158	0.0000	0.0000	0.0000	0.0000	0.0000
183	Strl Max	-12.7667	-57.7983	26.9547	0.0000	0.0000	0.0000	0.0000	0.0000
184	Strl Max	8.5084	5.1840	-4.3263	0.0000	0.0000	0.0000	0.0000	0.0000
184	Strl Max	7.0282	3.7364	-2.8396	0.0000	0.0000	0.0000	0.0000	0.0000
185	Strl Max	3.9423	3.2973	1.1197	0.0000	0.0000	0.0000	0.0000	0.0000
185	Strl Max	3.8574	4.6110	1.3785	0.0000	0.0000	0.0000	0.0000	0.0000
186	Strl Max	-29.7724	-34.1359	-19.6707	0.0000	0.0000	0.0000	0.0000	0.0000
186	Strl Max	-17.1648	-23.1043	-13.0779	0.0000	0.0000	0.0000	0.0000	0.0000
187	Strl Max	-15.4668	-22.6712	11.8147	0.0000	0.0000	0.0000	0.0000	0.0000
187	Strl Max	-31.1666	-34.0650	17.4444	0.0000	0.0000	0.0000	0.0000	0.0000
188	Strl Max	2.8869	7.1088	-0.8905	0.0000	0.0000	0.0000	0.0000	0.0000
188	Strl Max	8.1199	4.6535	-0.3808	0.0000	0.0000	0.0000	0.0000	0.0000
189	Strl Max	3.2070	-3.5846	-1.3456	0.0000	0.0000	0.0000	0.0000	0.0000
189	Strl Max	3.3187	-3.3366	-0.0662	0.0000	0.0000	0.0000	0.0000	0.0000
190	Strl Max	-22.7530	-74.9280	-45.8356	0.0000	0.0000	0.0000	0.0000	0.0000
190	Strl Max	-9.8439	-51.7626	-31.7017	0.0000	0.0000	0.0000	0.0000	0.0000
191	Strl Max	-6.2835	-47.3574	18.6424	0.0000	0.0000	0.0000	0.0000	0.0000
191	Strl Max	-16.8942	-68.0894	27.8436	0.0000	0.0000	0.0000	0.0000	0.0000
192	Strl Max	6.5008	10.0127	-0.6973	0.0000	0.0000	0.0000	0.0000	0.0000
192	Strl Max	4.8569	10.3654	-0.0992	0.0000	0.0000	0.0000	0.0000	0.0000
193	Strl Max	-20.1734	-27.1841	-10.4402	0.0000	0.0000	0.0000	0.0000	0.0000
193	Strl Max	-8.5865	-19.6377	-7.1986	0.0000	0.0000	0.0000	0.0000	0.0000
194	Strl Max	-4.7071	-18.7305	10.2987	0.0000	0.0000	0.0000	0.0000	0.0000
194	Strl Max	-13.6440	-25.9478	14.5168	0.0000	0.0000	0.0000	0.0000	0.0000
195	Strl Max	17.5461	7.8746	-2.5427	0.0000	0.0000	0.0000	0.0000	0.0000
195	Strl Max	20.1282	6.3838	-1.9489	0.0000	0.0000	0.0000	0.0000	0.0000
196	Strl Max	2.7006	-7.8208	-4.2454	0.0000	0.0000	0.0000	0.0000	0.0000
196	Strl Max	9.0512	-6.7868	-2.1770	0.0000	0.0000	0.0000	0.0000	0.0000
197	Strl Max	-11.3080	-56.0371	8.4244	0.0000	0.0000	0.0000	0.0000	0.0000
197	Strl Max	-24.7211	-74.8718	11.0978	0.0000	0.0000	0.0000	0.0000	0.0000
198	Strl Max	-2.1822	12.4105	-9.9837	0.0000	0.0000	0.0000	0.0000	0.0000
198	Strl Max	7.3541	9.2856	-7.6078	0.0000	0.0000	0.0000	0.0000	0.0000
199	Strl Max	7.3989	9.2192	7.3370	0.0000	0.0000	0.0000	0.0000	0.0000
199	Strl Max	-2.1763	12.4101	9.9870	0.0000	0.0000	0.0000	0.0000	0.0000
200	Strl Max	-16.5820	-73.6138	-11.3638	0.0000	0.0000	0.0000	0.0000	0.0000
200	Strl Max	-10.3442	-55.9038	-8.5201	0.0000	0.0000	0.0000	0.0000	0.0000
201	Strl Max	8.6140	-6.2782	2.5873	0.0000	0.0000	0.0000	0.0000	0.0000
201	Strl Max	2.7416	-7.8212	4.2502	0.0000	0.0000	0.0000	0.0000	0.0000
202	Strl Max	17.5532	5.8391	1.8574	0.0000	0.0000	0.0000	0.0000	0.0000
202	Strl Max	19.6431	7.8903	2.4867	0.0000	0.0000	0.0000	0.0000	0.0000
203	Strl Max	-10.7034	-25.1112	-14.0948	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
203	Strl Max	-4.6682	-18.7313	-10.3057	0.0000	0.0000	0.0000	0.0000	0.0000
204	Strl Max	-9.3752	-19.5713	7.1675	0.0000	0.0000	0.0000	0.0000	0.0000
204	Strl Max	-17.9719	-26.3791	9.7497	0.0000	0.0000	0.0000	0.0000	0.0000
205	Strl Max	7.4530	7.8731	0.1535	0.0000	0.0000	0.0000	0.0000	0.0000
205	Strl Max	8.7772	7.8646	0.3153	0.0000	0.0000	0.0000	0.0000	0.0000
206	Strl Max	-15.8285	-64.0044	-25.2253	0.0000	0.0000	0.0000	0.0000	0.0000
206	Strl Max	-9.0308	-47.3494	-18.6277	0.0000	0.0000	0.0000	0.0000	0.0000
207	Strl Max	-12.1409	-51.7463	31.6797	0.0000	0.0000	0.0000	0.0000	0.0000
207	Strl Max	-20.6103	-69.9718	42.9420	0.0000	0.0000	0.0000	0.0000	0.0000
208	Strl Max	6.5245	-2.7038	0.8034	0.0000	0.0000	0.0000	0.0000	0.0000
208	Strl Max	2.1602	-3.5542	1.2803	0.0000	0.0000	0.0000	0.0000	0.0000
209	Strl Max	7.6515	4.7856	0.3972	0.0000	0.0000	0.0000	0.0000	0.0000
209	Strl Max	4.4765	6.3038	0.6364	0.0000	0.0000	0.0000	0.0000	0.0000
210	Strl Max	-26.4255	-30.3840	-15.6671	0.0000	0.0000	0.0000	0.0000	0.0000
210	Strl Max	-18.3019	-23.2760	-12.0355	0.0000	0.0000	0.0000	0.0000	0.0000
211	Strl Max	-18.3105	-23.7357	13.4071	0.0000	0.0000	0.0000	0.0000	0.0000
211	Strl Max	-28.0577	-31.0316	17.5822	0.0000	0.0000	0.0000	0.0000	0.0000
212	Strl Max	0.6782	4.8149	-1.2389	0.0000	0.0000	0.0000	0.0000	0.0000
212	Strl Max	2.5228	3.4472	-1.0103	0.0000	0.0000	0.0000	0.0000	0.0000
213	Strl Max	6.6083	3.5742	2.8560	0.0000	0.0000	0.0000	0.0000	0.0000
213	Strl Max	5.7488	3.4560	3.4867	0.0000	0.0000	0.0000	0.0000	0.0000
214	Strl Max	-9.2030	-41.8937	-19.5600	0.0000	0.0000	0.0000	0.0000	0.0000
214	Strl Max	-8.8250	-40.2628	-18.7839	0.0000	0.0000	0.0000	0.0000	0.0000
215	Strl Max	-15.3472	-47.6820	26.7769	0.0000	0.0000	0.0000	0.0000	0.0000
215	Strl Max	-15.9736	-49.6429	27.8884	0.0000	0.0000	0.0000	0.0000	0.0000
216	Strl Max	-3.2444	-1.8768	1.9666	0.0000	0.0000	0.0000	0.0000	0.0000
216	Strl Max	-3.3701	-1.9488	2.0366	0.0000	0.0000	0.0000	0.0000	0.0000
217	Strl Max	-47.4174	15.0448	8.0621	0.0000	0.0000	0.0000	0.0000	0.0000
217	Strl Max	-66.9081	10.5739	17.3430	0.0000	0.0000	0.0000	0.0000	0.0000
218	Strl Max	-20.8949	-35.4112	-41.8234	0.0000	0.0000	0.0000	0.0000	0.0000
218	Strl Max	-15.9607	-18.7295	-31.8588	0.0000	0.0000	0.0000	0.0000	0.0000



Memorandum

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To: Rick Ellis, Division Head, Bridge Division, ARDOT
Kyle Yeary PE, Assistant Division Head, Bridge Division, ARDOT

From: Vincent Gastoni, PE, Principal Project Manager, Principal Bridge Engineer
Alex Pearson PE, Bridge Engineer II
Paul Towell PE, Principal Bridge Engineer
Greg Hasbrouck PE, Senior Bridge Engineer

Date: October 3, 2019

Subject: AR White River Pier 1 Pier Cap
Refined Shear Friction Analysis-Final Memorandum

Note-This final memorandum with our comprehensive analysis, results and recommendations completely supersedes our September 27, 2019 memorandum of the same title.

Attached please find our refined shear friction analysis of the Pier 1 Cap construction joint per the AASHTO LRFD Bridge Design Specifications (8th Edition). This analysis utilizes a LARSA plate model based on geometric compatibility of the reinforced concrete element to determine the interface shear flow under the dead load, live load, seismic load and fatigue load combinations per AASHTO LRFD. This memorandum addresses comments provided by ARDOT regarding our September 12, 2019 simplified calculations based on the bearing seismic reaction forces listed in the contract plans, as well as the durability under fatigue loading due to the high daily truck traffic on this route.

For this refined analysis, load generation was as follows:

Dead Loads-Cap: Per the LARSA Model

Dead Loads-Superstructure: Forces from Jacobs calculations for dead load reactions were applied at the bearing location in the LARSA model

Live Loads-Superstructure: Forces from Jacobs calculations for the combined HL-93 design truck and design lane load reactions were applied at the bearing locations per Jacobs original design approach. Fatigue loads were applied similarly using only the HL-93 design truck reactions

Seismic Forces: Forces from Jacobs calculations for seismic and dead load reactions were applied at the bearing locations in the LARSA model

Note-The Jacobs original design calculations provided by ARDOT were sufficient to obtain the external service load girder reactions without the need for an independent global analysis model by Parsons.

Evaluation:

DC, DW, LL, seismic and fatigue cases were generated and combined per LRFD 3.4.1 Load Factors and Load Combination to produce STRENGTH I, EXTREME EVENT I and FATIGUE I load cases for evaluation.



We have also reviewed the ARDOT provided literature by The Alphatec Group regarding effects of machine vibration on cold joints in concrete and have included a fatigue evaluation of the reinforcing bars at the construction joint to evaluate durability. Multiple codes and references were reviewed to evaluate the results for compliance with accepted practices for durability in reinforced concrete structures including AASHTO LRFD, ACI, CEB-FIP and NCHRP. Our evaluation criteria is listed below and represents industry accepted practices for determining allowable fatigue resistance in reinforcing bars to ensure durability of the structure.

INTERFACE SHEAR

STRENGTH I, EXTREME EVENT AND FATIGUE I interface shear stresses at the construction joint were compared to the shear resistance capacity per LRFD 5.7.4 based on the lowest friction and cohesion factors per LRFD 5.7.4.4 (unprepared finished concrete surface not intentionally roughed).

AASHTO LRFD provides no direct guidance on fatigue for interface shear reinforcement, however, CEB-FIP Model Code 2010 does include requirements. Parsons provides a comparison between CEB-FIP 2010 and AASHTO showing the similarity in application and results. As such we have adopted the CEB-FIP criteria of using only 40% of the strength resistance for fatigue evaluation under a combined FATIGUE I load combination.

COMBINED VERTICAL AND INTERFACE SHEAR

STRENGTH I and EXTREME EVENT I vertical shears were compared to the shear resistance capacity per LRFD 5.7.3.3 to evaluate the demand on the vertical reinforcing and determine the available residual capacity, and then were combined with the shear interface stresses in the reinforcement per LRFD 5.7.4.

For the FATIGUE I load case, Parsons applied AASHTO LRFD 5.5.3 to evaluate the fatigue limit state of the vertical reinforcing based on the live load stress range in the reinforcement while ignoring the concrete contribution to resistance. While this code provision is intended for primary horizontal reinforcement in beam elements, Parsons provides a published reference which recommends using 75% of the allowable constant-amplitude fatigue threshold for horizontal reinforcement as the criteria for vertical shear reinforcement. As such, we have adopted this criterion for our evaluation of the combined vertical shear and interface shear results.

Analysis Results:

INTERFACE SHEAR

Demand over Capacity (D/C) ratios are all less than the limiting case of 1.0

Load Case Combination	D/C
STRENGTH I	0.37
EXTREME EVENT I	0.38
FATIGUE	0.13

COMBINED VERTICAL AND INTERFACE SHEAR

Demand over Capacity (D/C) ratios are all less than the limiting case of 1.0

Load Case Combination	D/C
STRENGTH I	0.79
EXTREME EVENT I	0.68
FATIGUE	0.73

(Note, this combination of vertical and horizontal shear forces is conservative since the peak stress locations are not coincident in the reinforcement. Per AASHTO 5.7.4.1 "Where the required interface shear reinforcement in girder/slab design exceeds the area required to satisfy flexural shear requirements, additional reinforcement shall be provided to satisfy the interface shear requirements".)

DURABILITY:

In our attached report we include excerpts from NCHRP25-25 (72) related to construction vibration effects on historic buildings. Figure 1 on Page 12 summarizes the effects of various vibration sources showing "truck driving over a bump" at 0.05 Peak Particle Velocity (PPV), while a "vibratory roller" is at 0.20 PPV, which could be compared to the vibrations affecting the machine foundation in the Alphatec article provided by ARDOT. Referring to Page 11 of the NCHRP excerpt, literature reviewed as part of the NCHRP study defines PPV between 0.04 and 0.2 in./sec. as "barely perceptible", while PPV between 0.2 and 0.8 in./sec. is "distinctly perceptible". While not a definitive comparison of truck traffic crossing a bridge, the truck vibrations would be at the lower end of the PPV vibration scale compared to the machinery as referenced Alphatec article indicating the construction joint in the Pier 1 cap does not present a defined durability hazard to the in-place structure. However, since the original design called for a monolithic placement, the exposed seam between pours represents a potential area for chloride intrusion and should be sealed.

Recommendations:

By satisfying all the LRFD code provisions, the analysis demonstrates there will be sufficient interface shear capacity at the construction joint for the beam to act compositely as originally designed. Based on our analysis of the demands from the strength, seismic and fatigue load cases and the calculated resistance capacities of the in-place structure I recommend acceptance of the cap with the construction joint as-is.

To address durability concerns of the cap due to the construction joint we recommend a Class 3 Protective Surface Treatment be applied along the perimeter of the cap at the construction joint interface location per ARDOT Construction Specification Section 803.01.c.

Memorandum
October 3, 2019
AR White River Pier 1 Pier Cap Evaluation



Vincent T. Gastoni
Professional Engineer
CA 52291
MN 41395
MS 17508
MO 2007003977
OIQ PT01945 (Quebec)

CC: Michael Hernandez, Parsons

Attachment:

"White River Pier Cap 1, Br 07343 Over White River, Construction Joint Investigation"

Design Summary
LARSA Model Graphic Summary
LARSA Input Loads
Interface Shear Results
Combined Vertical and Interface Shear Results
Fatigue Results

Appendix:

- Bridge No. 07343 Plans
- Construction joint elevations
- Pier 1 and 2 Design Computation
- AAASHTO LRFD Bridge Design Specification (8th Edition) – Reference
- Reinforced Concrete Mechanics & Design, Wight & MacGregor – Reference
- CEB-FIB Model Code 2010
- NCHRP 25-25/Task 72
- LARSA Model Output



3433 BROADWAY ST. NE, MINNEAPOLIS MN 55413

WHITE RIVER PIER CAP 1

BR. 07343 OVER WHITE RIVER

Construction Joint Investigation

DESIGN BY:	ASP	2019.10.03
CHECK BY:	Independent	
BRIDGE NO.		07343
JOB NO.		406759

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[illegible]

White River Pier Cap Construction Joint

During the pour of pier cap 1 of Br. 07343, there was an interruption to the pour or approximately three hours. At this point approximately 3.5' of cap had been poured. At the time the pour resumed, the initial pour appears to have started to set and had become somewhat stiff.

The intent of the following calculations is to evaluate this potential construction joint. The two pours will be evaluated as a composite beam. Provided the construction joint has sufficient interface shear capacity, the pier cap will act as a single, composite, unit.

Analysis Procedure:

In order to accurately determine the Interface shear force, a 2D Plate model of the pier cap will be made in LARSA. The pier cap will be modeled as a unit width. To capture stiffness effects, the columns will be modeled as well.

Columns will be modeled as beam elements. Columns will be fixed at the bottom of the pier cap and fixed at the top of the plinth. Section properties of the column will be reduced such that the stiffness between the unit width cap and column is the same as actual cap and column.

Superstructure dead, live, and extreme event loads will be applied at the bearings at the top of the cap. Loads will be determined from the provided design calculations and adjusted for the unit width cap. Selfweight of the cap will be generated in the model. Live load cases will be enveloped such that maximum and minimum live load results will be checked at all locations. These will be combined with dead load using Strength I and Extreme Event I load combination.

Additionally, fatigue loads will be determined from single truck reactions at Pier 1 provided in design calculations. Fatigue load patterns will be determined using LLDF's provided in design calculations. These will be enveloped and combined with dead loads using Fatigue I load combinations.

Interface shear force Strength I, Extreme Event I, and Fatigue I results will be extracted from the model. Where multiple live load patterns were considered, maximum and minimum results will be extracted to envelope the results. The F_{xy} results @ $Z=3.5'$ will be considered, which represents the Interface shear force at the construction joint.

Vertical shear will be extracted in a similar manner as interface shear. Compound element forces will be used to calculate vertical shear at 0.25' increments along the length of the cap.

Design Procedure:

The construction joint will be designed in the same manner as a composite beam. There must be sufficient amount of interface shear transfer for the two portions of concrete to act compositely.

Shear resistance will be determined per AASHTO 5.7.4. The construction joint will be assumed to be a "clean concrete surface, free of laitance, but not intentionally roughed". This has the most conservative values for cohesion and friction between the planes. Additionally, any compression in the plane due to bending will conservatively be ignored in the calculations.

Interface shear will be checked for Strength I, Extreme Event I, and Fatigue I. Fatigue I will use a reduced interface shear resistance as stipulated in CEB-FIP 2010 Model Code.

The combination of vertical shear stress and interface shear stress in the steel will be checked for Strength I and Extreme Event I. The required shear reinforcement for vertical shear will be determined per AASHTO 5.7. These calculations will conservatively consider a direct addition of the stresses calculated independent of each other. The combination of vertical shear and interface shear stress range for Fatigue I will be checked against AASHTO 5.5.3

Design Results:

The analysis shows that there is sufficient interface shear capacity between the first and second pour such that the section is composite under Strength I, Extreme Event I, and Fatigue I loading.

Additionally, the combined vertical and interface shear stress in the reinforcement does not exceed the design yield strength under Strength and Extreme Event conditions, or the constant-amplitude fatigue threshold under Fatigue I loading.

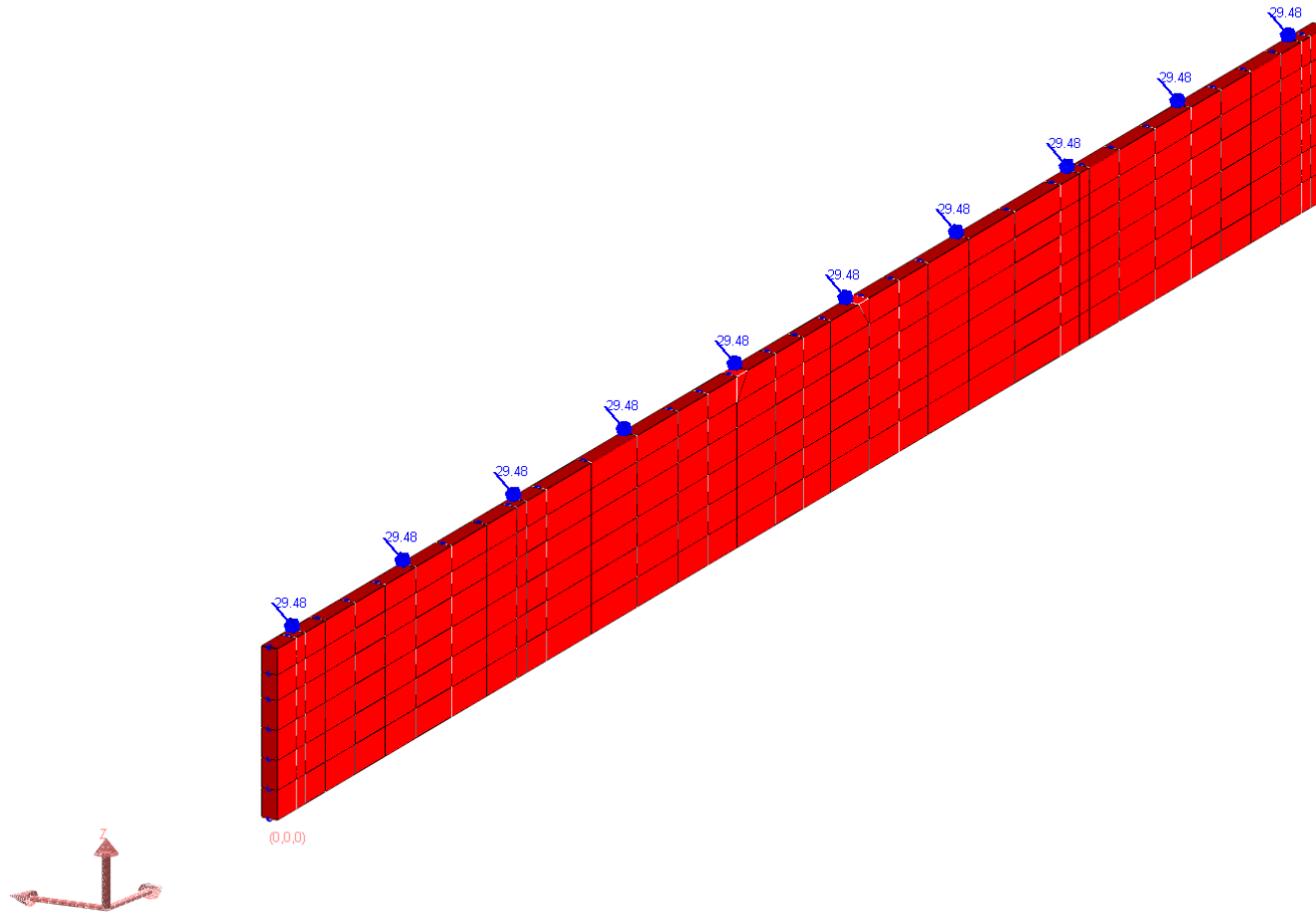
Therefore, the in place pier cap will respond as initially intended in design and will not experience any long term durability issues due to the construction joint.

LARSA Graphic Summary

PMJV Appeal 10-04-2019
Memo contained an additional
8 pages of load inputs which
are also in the 9-27-2019
memo removed from this
package. Original document
had 287 sequential pages

Graphics View 1

Zoom 2.441X
Load Case Eq4 (units: kips, ft)



Z Y
↑ ↑
Local/UCS Axes

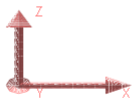
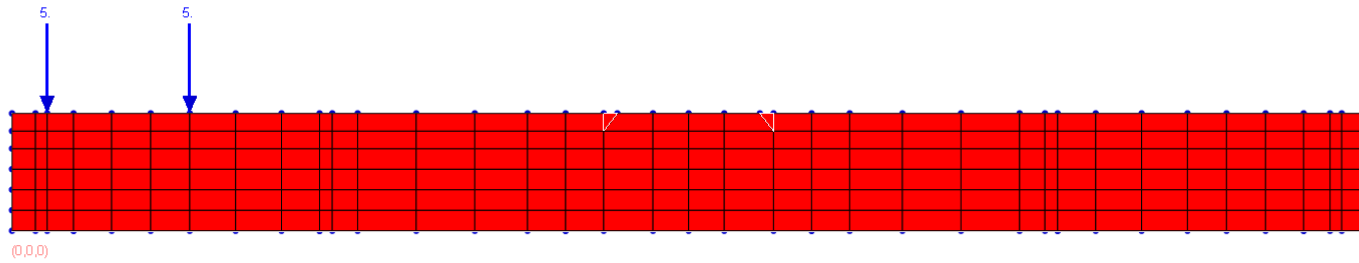


FATIGUE LIVE LOAD CASES

Graphics View 1

Zoom: 1.563X
Load Case FLL1 (units: kips, ft)

FLL-1



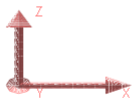
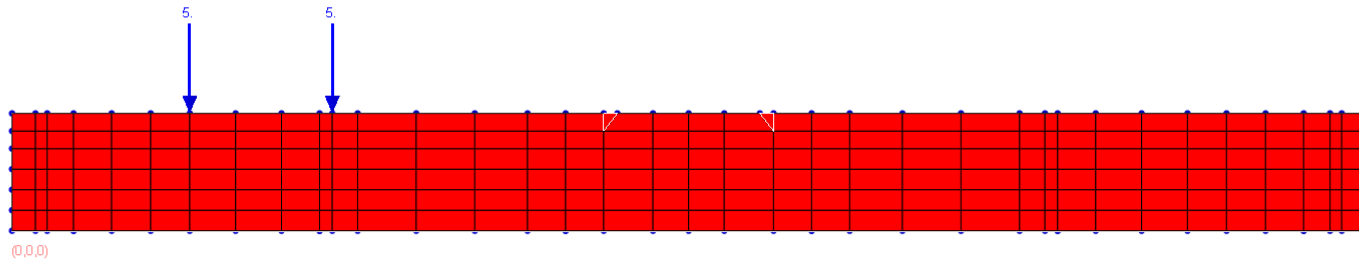
Z Y
↑ ↑
Local/UCS Axes



Graphics View 1

Zoom: 1.563X
Load Case FLL2 (units: kips, ft)

FLL-2



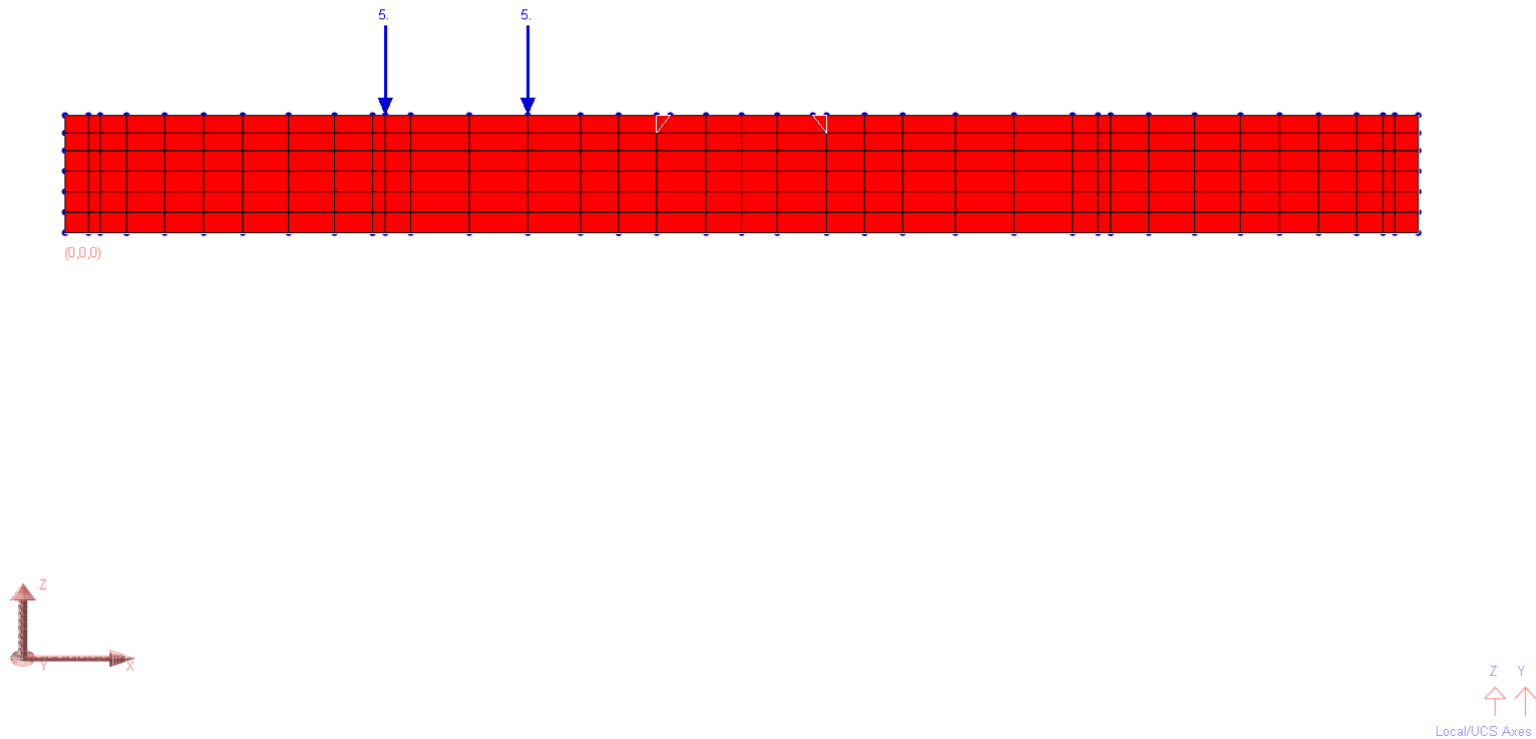
Z Y
↑ ↑
Local/UCS Axes



Graphics View 1

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Load Case FLL3 (units: kips, ft)

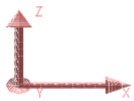
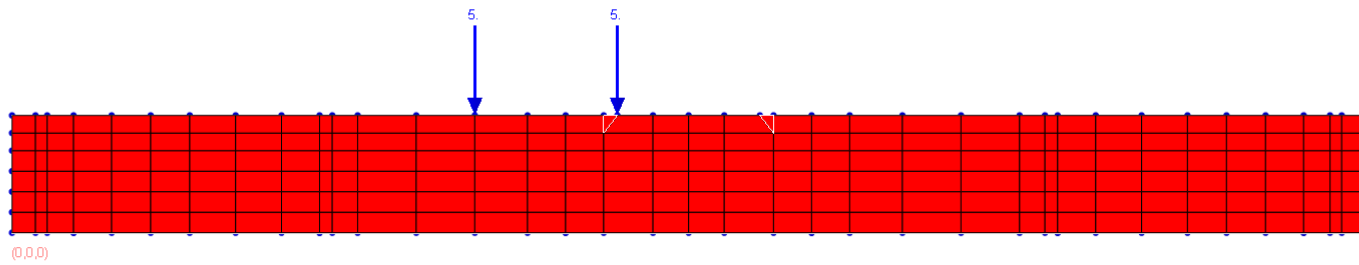
FLL-3



Graphics View 1

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Load Case FLL4 (units: kips, ft)

FLL-4



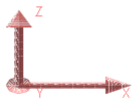
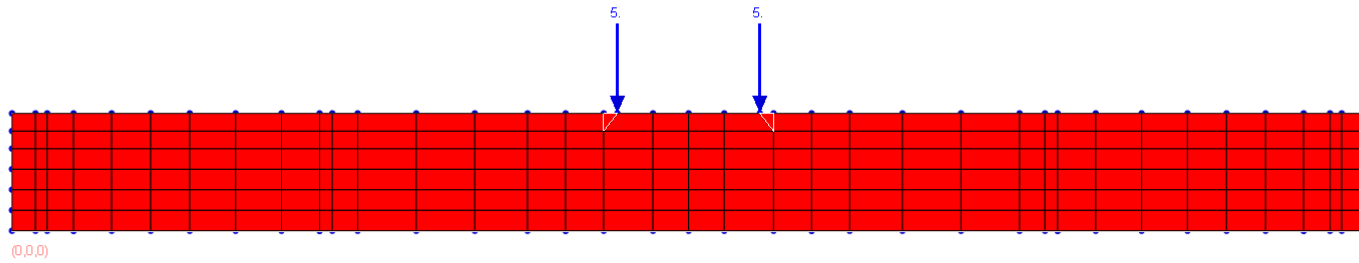
Z Y
↑ ↑
Local/UCS Axes



Graphics View 1

Zoom: 1.563X
Load Case FLL5 (units: kips, ft)

FLL-5



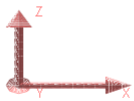
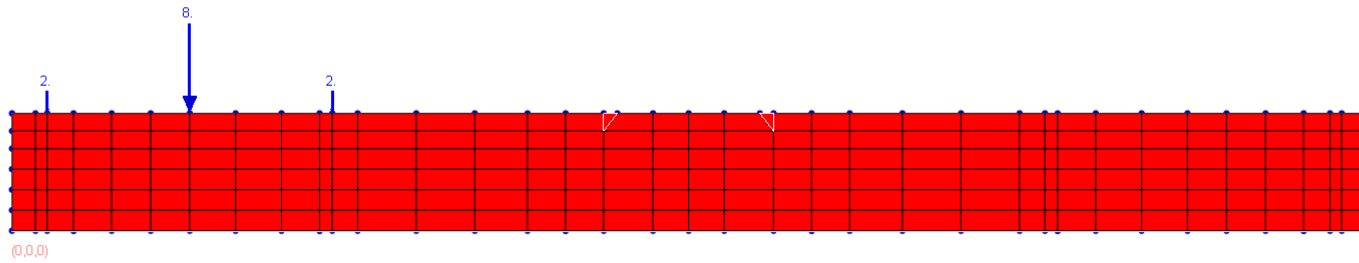
Z Y
↑ ↑
Local/UCS Axes



Graphics View 1

Zoom: 1.563X
Load Case FLL6 (units: kips, ft)

FLL-6



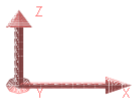
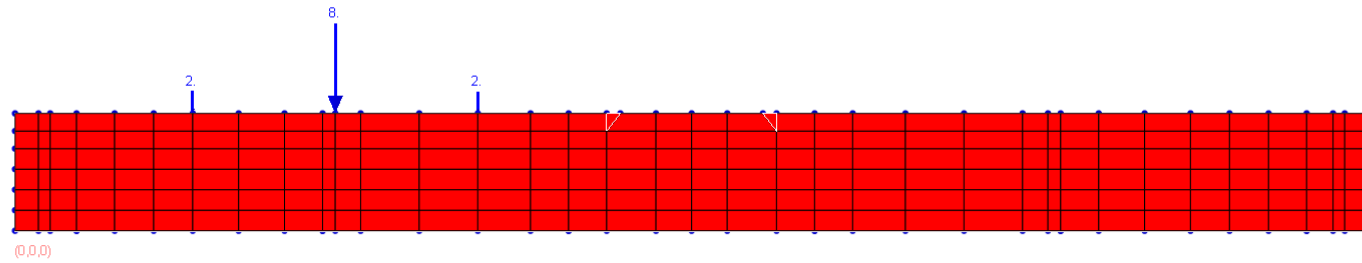
Z Y
↑ ↑
Local/UCS Axes



Graphics View 1

Zoom: 1.563X
Load Case FLL7 (units: kips, ft)

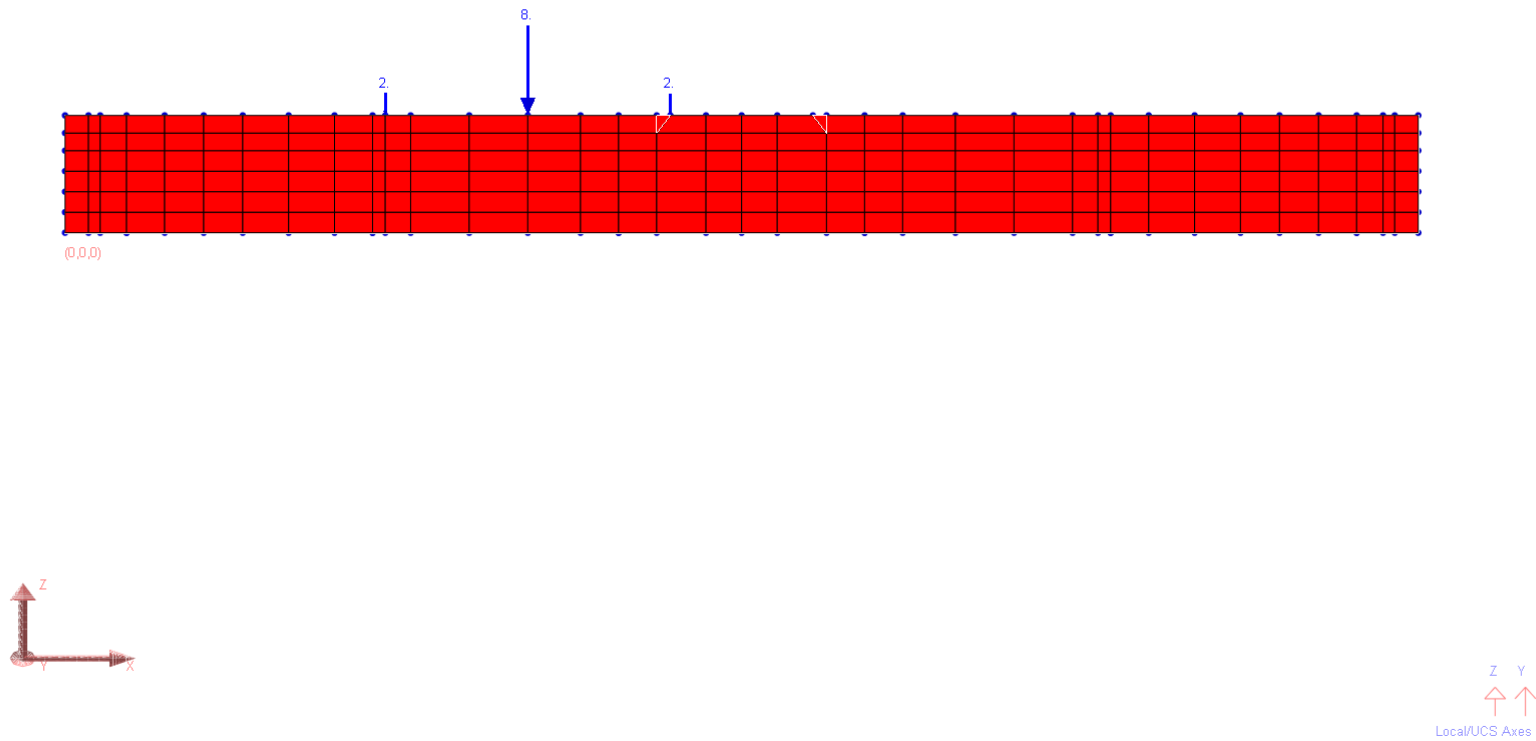
FLL-7



Graphics View 1

Zoom: 1.563X
Load Case FLL8 (units: kips, ft)

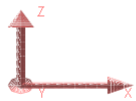
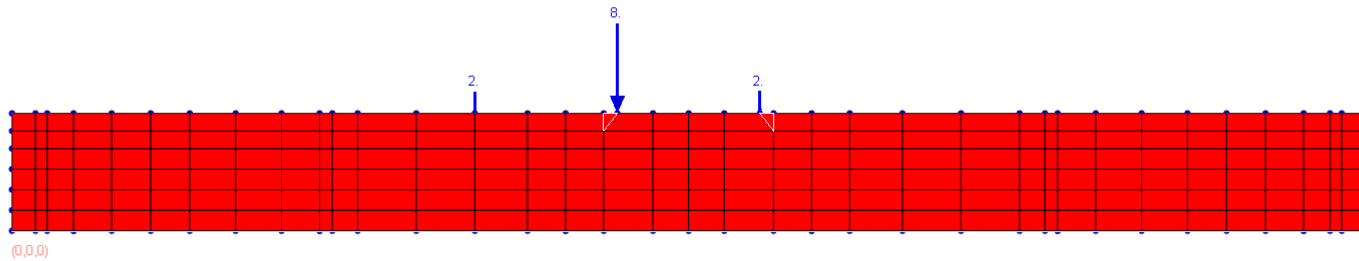
FLL-8



Graphics View 1

Zoom: 1.563X
Load Case FLL9 (units: kips, ft)

FLL-9



PMJV Appeal 10-04-2019
Memo contained an additional
5 pages of local plate outputs
which are also in the
9-27-2019 memo removed
from this package. Original
document had 287 sequential
pages

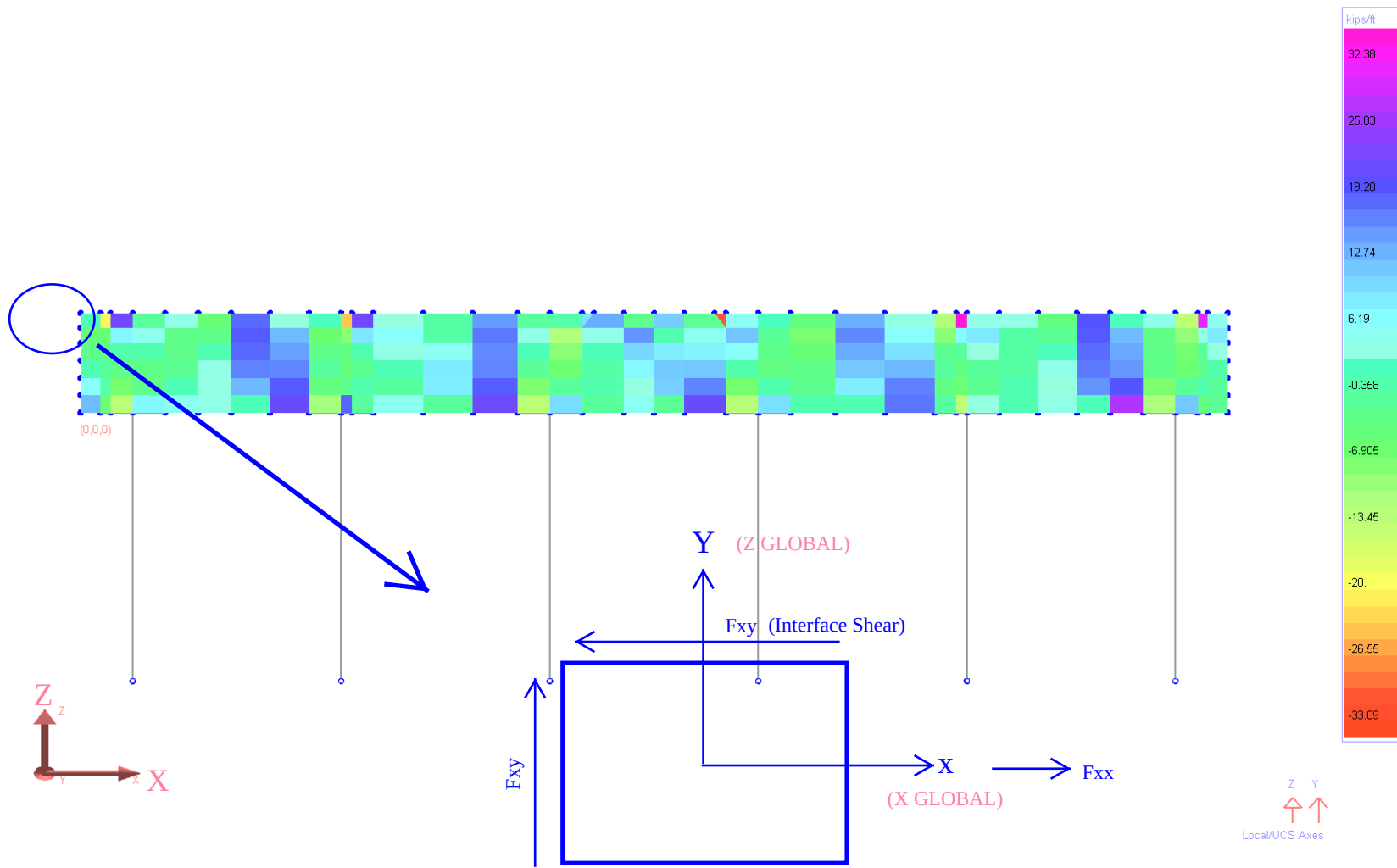
Z Y
↑ ↑
Local/UCS Axes



Graphics View 1

Zoom 1.563X
Plate Forces - Membrane Shear Fxy - ExtremeEvent1

EXTREME EVENT I - Interface Shear (Fxy) [KIP/FT.] - FULL CAP



TYPICAL PLATE LOCAL AXIS DIAGRAM



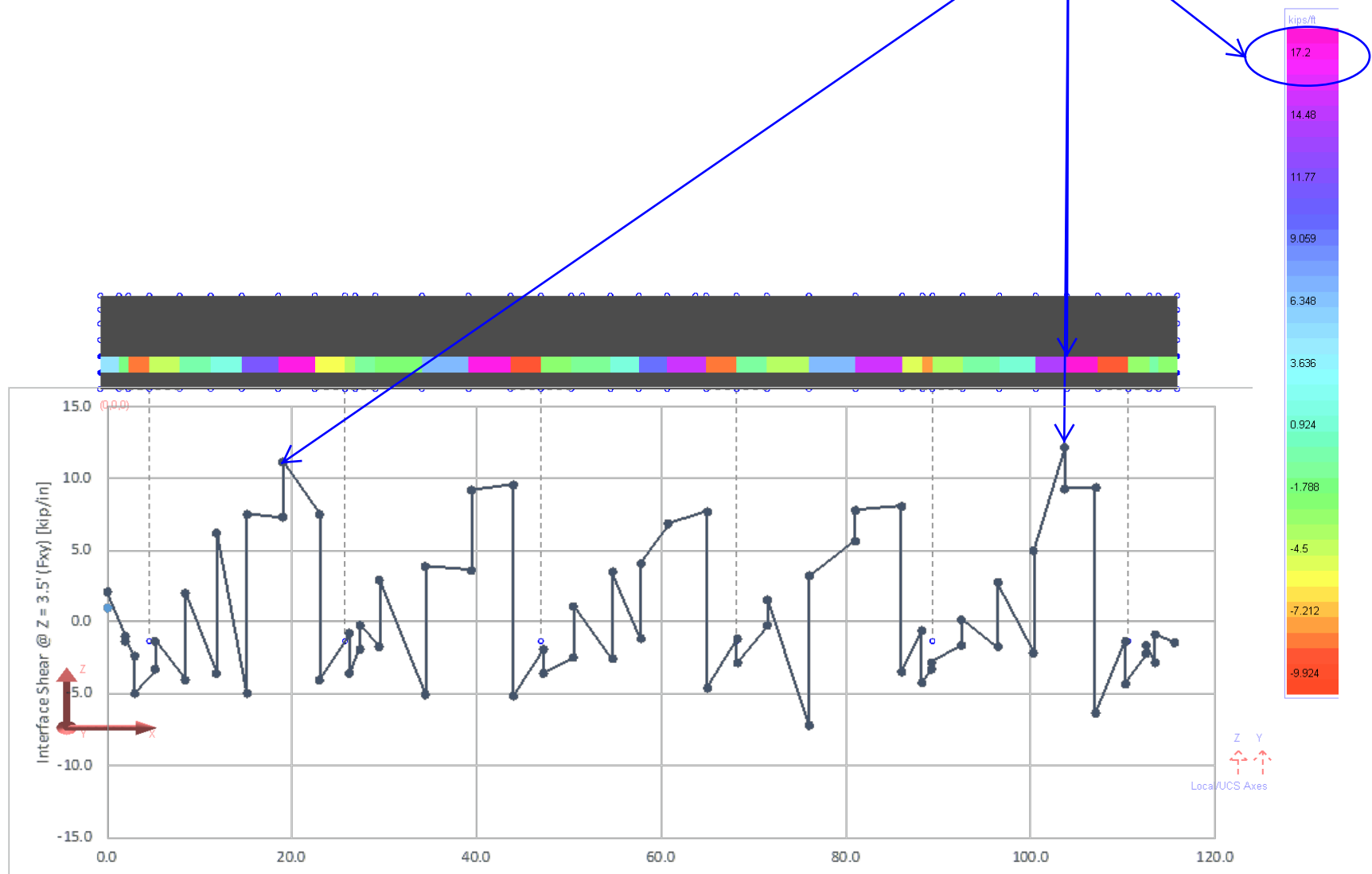
INTERFACE SHEAR FORCE

Graphics View 1

Zoom: 1.563X
Plate Forces - Membrane Shear Fxy - ExtremeEvent1

EXTREME EVENT- Interface Shear (Fxy) [KIP/FT.] - @ 3.5' PLANE

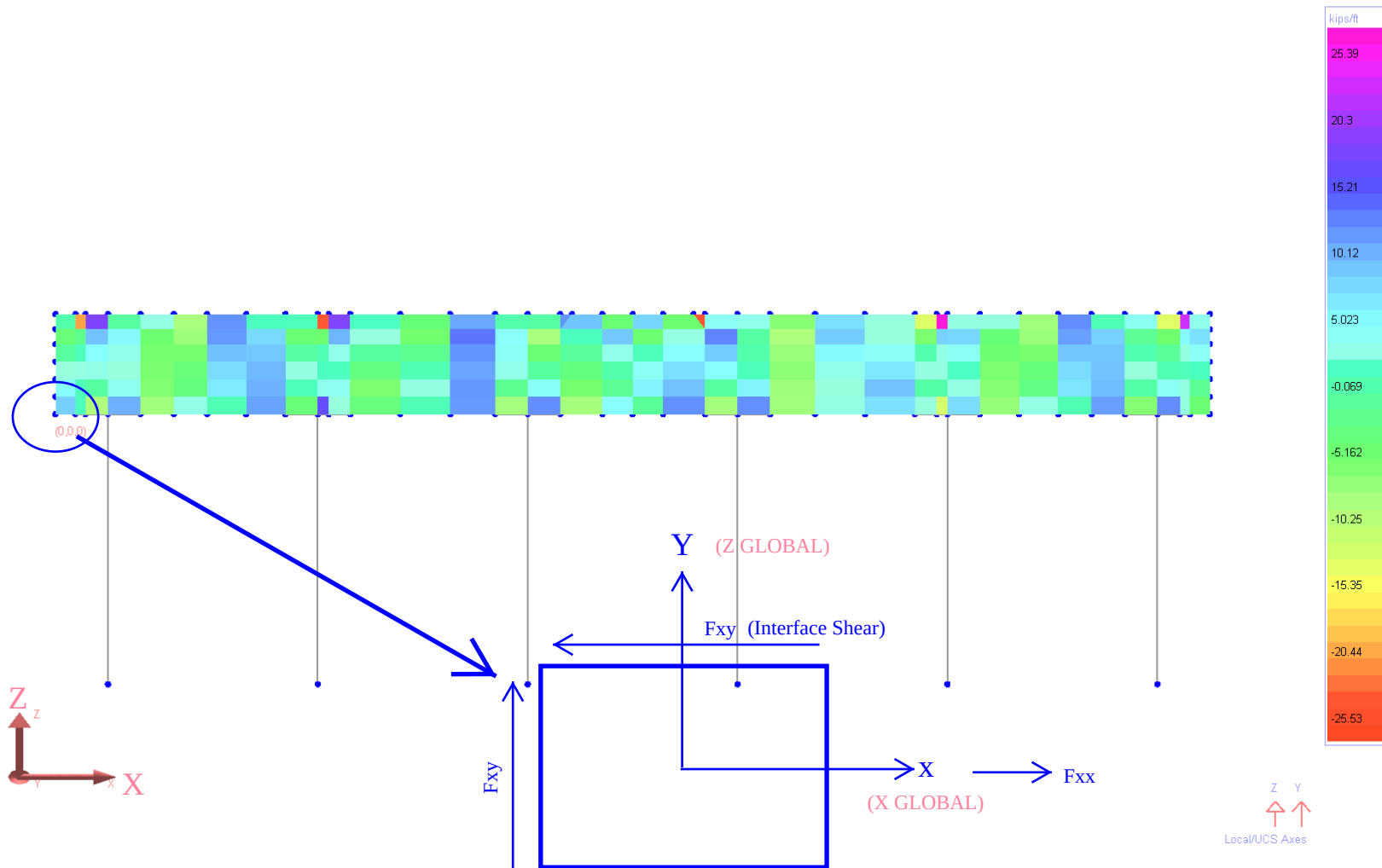
Extreme Event - $17.2 \text{ kip/ft} \times 8.5' / 12 = 12.183 \text{ kip/in}$



Graphics View 1

Zoom 1.563X
Plate Forces - Membrane Shear Fxy - Fatigue I

FATIGUE I - MAX - Interface Shear (Fxy) [KIP/FT.] - FULL CAP



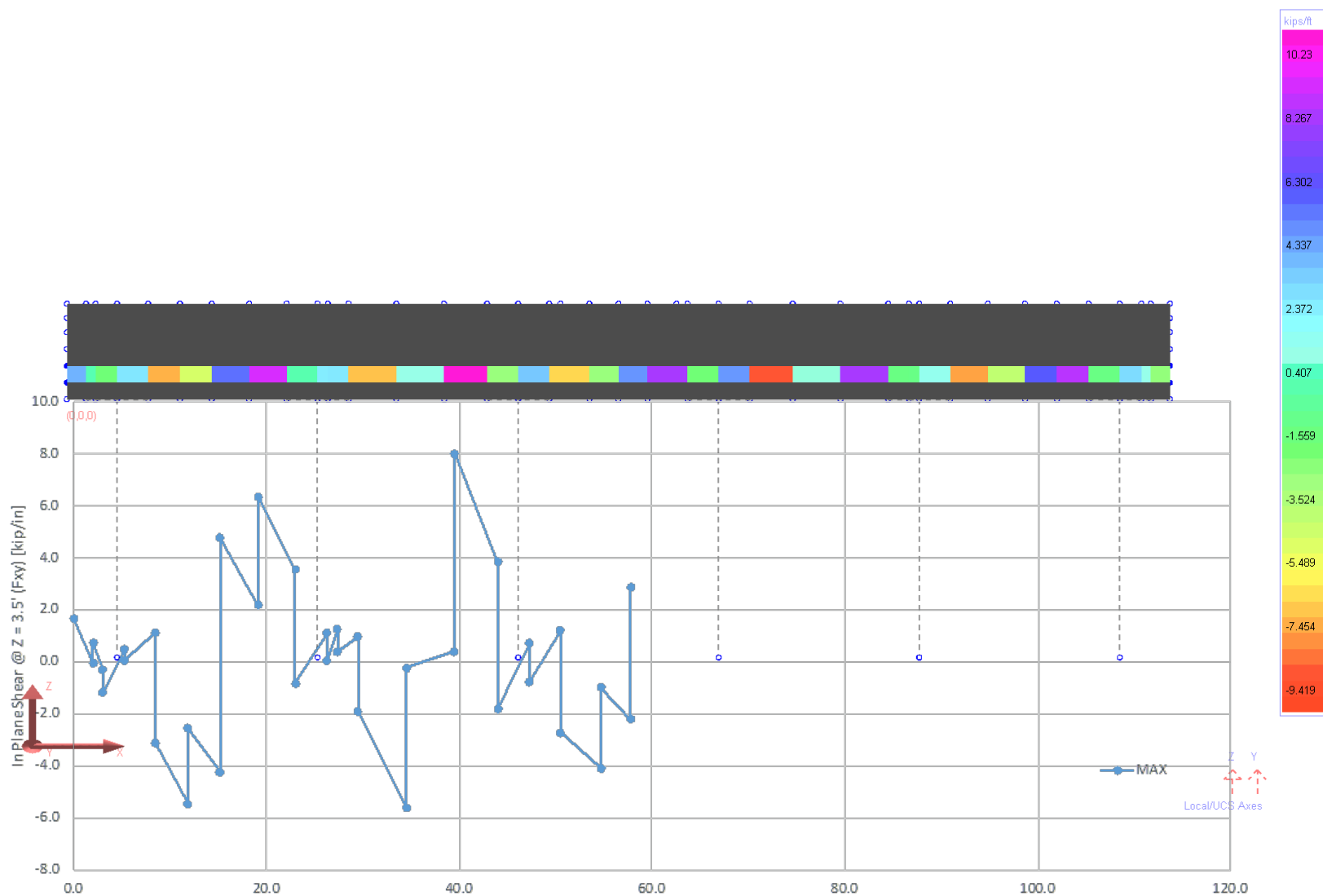
TYPICAL PLATE LOCAL AXIS DIAGRAM



Graphics View 1

Zoom: 1.563X
Plate Forces - Membrane Shear Fxy - Fatigue I

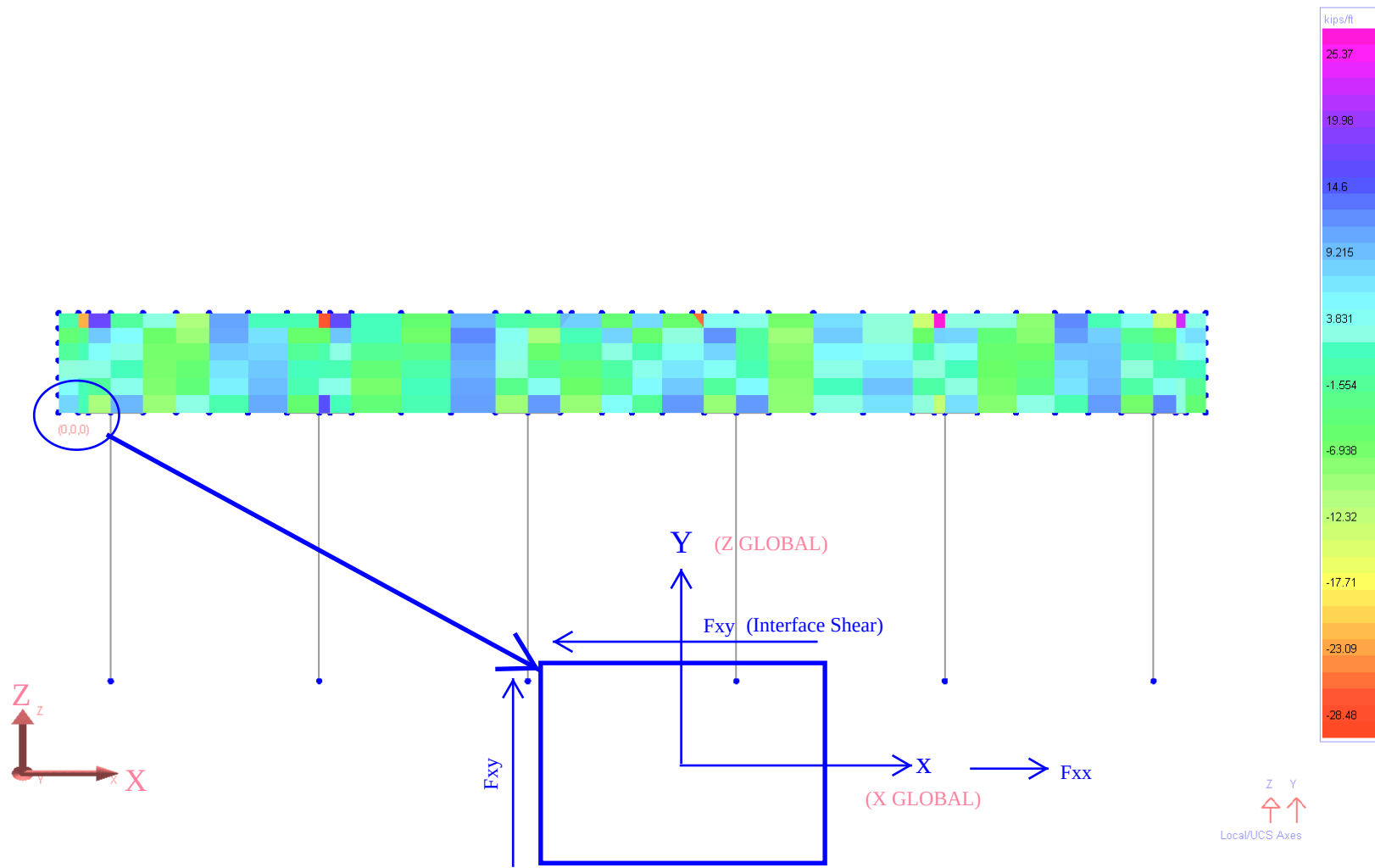
FATIGUE I - MAX Interface Shear (Fxy) [KIP/FT.] - @ 3.5' PLANE



Graphics View 1

Zoom 1.563X
Plate Forces - Membrane Shear Fxy - Fatigue I

FATIGUE I - MIN - Interface Shear (Fxy) [KIP/FT.] - FULL CAP



TYPICAL PLATE LOCAL AXIS DIAGRAM



Graphics View 1

Zoom: 1.563X
Plate Forces - Membrane Shear Fxy - Fatigue I

FATIGUE I - MIN Interface Shear (Fxy) [KIP/FT.] - @ 3.5' PLANE



LARSA Input Loads

Determine input loads for LARSA model from design calculations. Adjust loads to be applied to a unit width.

TOTAL WIDTH	8.500 [ft.]		
DW	1.5 [\]	LL	1.75 [\]
DC	1.25 [\]	IM	1.33 [\]

Dead and Live Load

DC					
	DC1	DW	DC	DC/ UNIT	INPUT
1	-786.32	-90.64	-895.09	-105.30	-106.00
2	-830.49	-90.18	-938.71	-110.44	-111.00
3	-860.42	-90.93	-969.54	-114.06	-115.00
4	-870.72	-90.47	-979.28	-115.21	-116.00
5	-885.24	-90.58	-993.94	-116.93	-117.00
6	-884.94	-90.66	-993.73	-116.91	-117.00
7	-875.87	-91.10	-985.19	-115.90	-116.00
8	-864.06	-91.55	-973.92	-114.58	-115.00
9	-853.75	-93.04	-965.40	-113.58	-114.00
10	-767.94	-88.67	-874.34	-102.86	-103.00

LL 1					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-18.57	-30.02	-54.72	-6.44	-7.00
2	-113.50	-183.40	-334.36	-39.34	-40.00
3	-18.57	-30.02	-54.72	-6.44	-7.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00

60

LL 2					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-12.47	-20.14	-36.73	-4.32	-5.00
2	-94.59	-152.84	-278.64	-32.78	-33.00
3	-48.15	-77.81	-141.85	-16.69	-17.00
4	-94.59	-152.84	-278.64	-32.78	-33.00
5	-1.29	-2.09	-3.80	-0.45	-1.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00

LL 3					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-84.42	-136.41	-248.69	-29.26	-30.00
2	-107.07	-173.02	-315.42	-37.11	-38.00
3	-104.88	-169.48	-308.97	-36.35	-37.00
4	-23.75	-38.38	-69.97	-8.23	-9.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00

LL 4					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-64.55	-104.31	-190.16	-22.37	-23.00
2	-81.88	-132.31	-241.21	-28.38	-29.00
3	-82.72	-133.67	-243.69	-28.67	-29.00
4	-79.65	-128.70	-234.63	-27.60	-28.00
5	-17.61	-28.45	-51.87	-6.10	-7.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00

LL 5					
	TRUCK	LANE	LL	LL/ UNIT	INPUT
1	-64.55	-104.31	-190.16	-22.37	-23.00
2	-81.88	-132.31	-241.21	-28.38	-29.00
3	-82.72	-133.67	-243.69	-28.67	-29.00
4	-79.65	-128.70	-234.63	-27.60	-28.00
5	-27.94	-45.16	-82.32	-9.68	-10.00
6	-72.38	-116.96	-213.23	-25.09	-26.00
7	-82.72	-133.67	-243.69	-28.67	-29.00
8	-82.72	-133.67	-243.69	-28.67	-29.00
9	-70.14	-113.35	-206.64	-24.31	-25.00
10	-8.10	-13.09	-23.86	-2.81	-3.00

Fatigue Load

Pier 1 LL - Truck Only	71.88 [kip.]
IM	1.15 [\]

Fatigue - Centered Between Girders				
		LL	LL/ UNIT	INPUT
n		41.33	4.86	5.00
n+1		41.33	4.86	5.00

Fatigue - Centered Between Girders					
		LLDF	LL	LL/ UNIT	INPUT
n-1		0.12	10.19	1.20	2.00
n		0.75	62.28	7.33	8.00
n+1		0.12	10.19	1.20	2.00

Extreme Event Load

EQ. 4										
	Y	X	Z	Load Per Unit			LARSA INPUT			
				Y	X	Z	X	Y	Z	R
1	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48
2	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48
3	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48
4	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48
5	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48
6	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48
7	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48
8	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48
9	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48
10	-149.48	190.07	30.70	-17.59	22.36	3.61	23.00	4.00	-18.00	29.48

Interface Shear Results

Results will be extracted from LARSA and compared to resistances calculated here. In plane shear results from LARA (Fxy) will be converted from a unit width /ft to a total pier cap width per in. (LARSA x (8'-2") / 12 in/ft)

Results from all Live load cases will be used to make a LL envelope.

Results from z=3.5' above the bottom of pier cap are shown below. For complete results see LARSA results.

Determine interface shear resistance per AASHTO 5.7.4.3. Conservatively ignore any contribution from concrete compression due to bending.

AASHTO Eq. 5.7.4.3-1 & 5.7.4.3-3

$$V_{ri} = \phi V_{ni}$$

$$V_{ni} = cA_{cv} + \mu (A_{vf}f_y + P_c)$$

Cohesion and Friction Factors per AASHTO 5.7.4.4

For concrete cast monolithically, cohesion and friction factors are shown below:

$$\begin{aligned} c &= 0.40 \text{ ksi} \\ \mu &= 1.4 \\ K_1 &= 0.25 \\ K_2 &= 1.5 \text{ ksi} \end{aligned}$$

For concrete placed against concrete not intentionally roughened, cohesion and friction factors are as follows:

$$\begin{aligned} c &= 0.075 \text{ ksi} \\ \mu &= 0.6 \\ K_1 &= 0.2 \\ K_2 &= 0.8 \text{ ksi} \end{aligned}$$

These calculations will conservatively use the reduced cohesion and friction factors for not intentionally roughened concrete shown above.

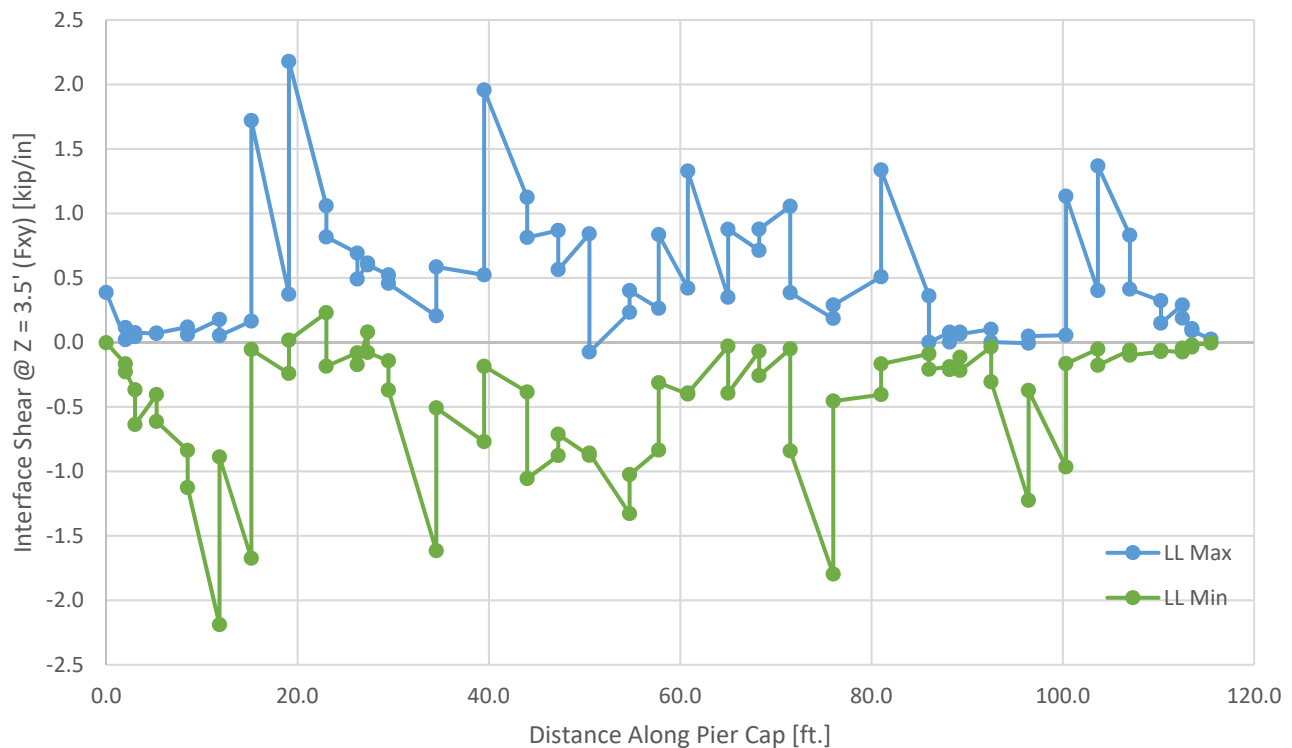
Vertical shear bar size	0.44 [in2]		Steel yield stress	60.0 [ksi]	*
Number of legs	4 [\]		Friction factor, μ	0.60 [\]	
Spacing of reinforcement	8.5 [in.]		Cohesion, c	0.075 [ksi]	
Cap width	102 [in.]		Resistance factor	0.90 [\]	
Factored steel interface shear resistance per AASHTO Eq. 5.7.4.3-3				6.71 [kip/in.]	
Factored concrete interface shear resistance per AASHTO Eq. 5.7.4.3-3				6.89 [kip/in.]	
Factored Total interface shear resistance per AASHTO Eq. 5.7.4.3-3				13.59 [kip/in.]	
Percent of total load carried by reinforcement				49.4 [%]	

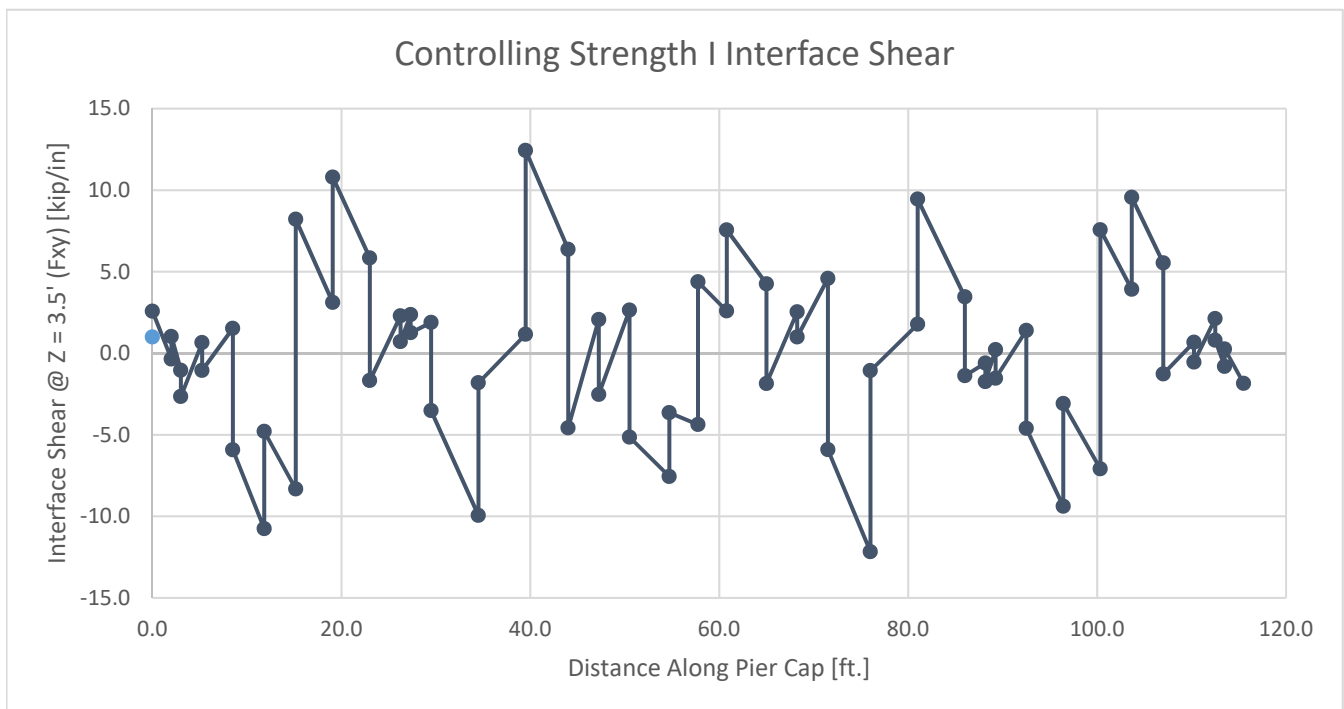
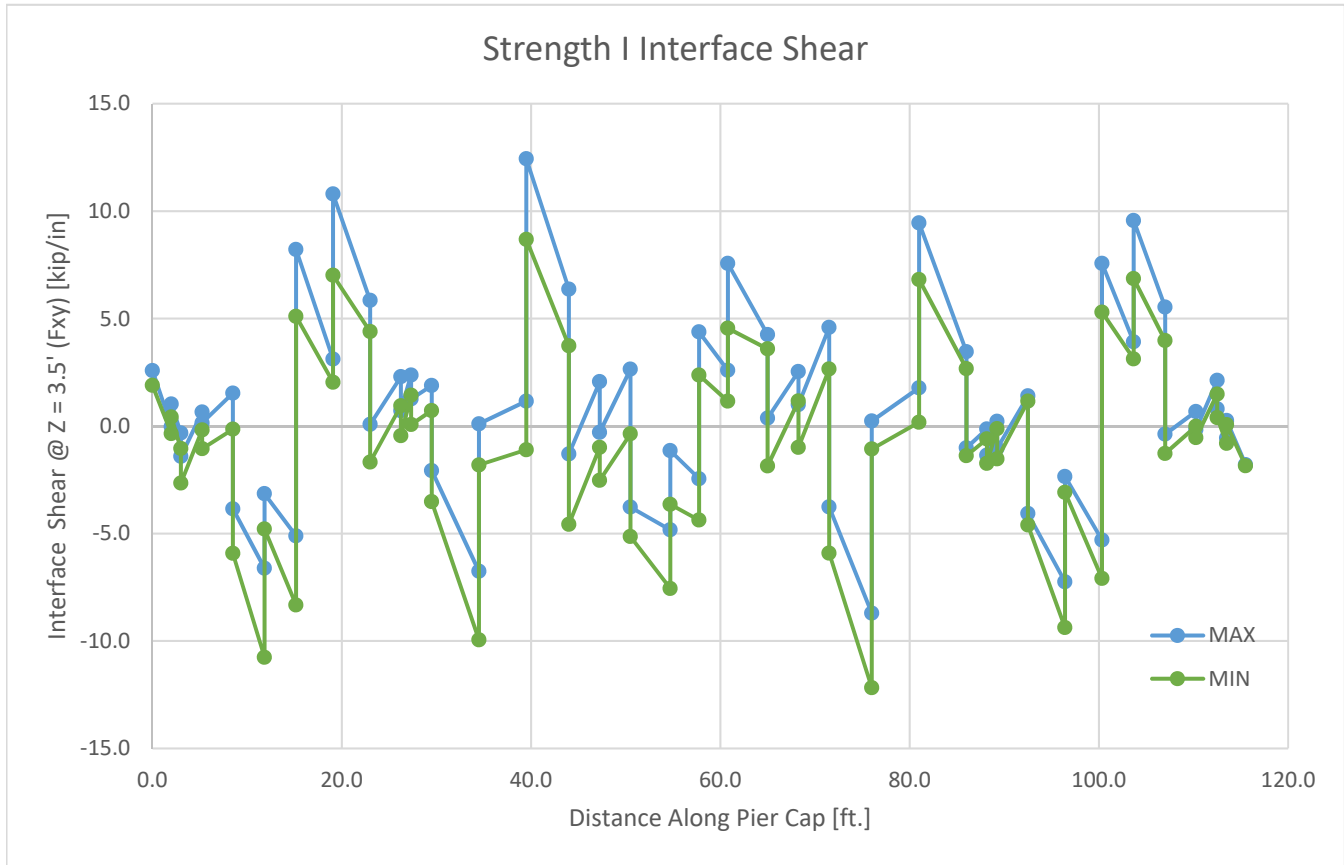
* Note per AASHTO 5.7.4 "Where the required interface shear reinforcement in girder/slab design exceeds the area required to satisfy flexural shear requirements, additional reinforcement shall be provided to satisfy the interface shear requirements." i.e. all shear reinforcement can be used for interface shear resistance. Additional reinforcement is only required when the required interface shear reinforcement exceeds that required from beam design.

JOINT	PLATE	ID	X [FT.]	LL [kip/in.]		Str. I [kip/in.]		Str. I Control	E.E. [kip/in]
				MAX	MIN	MAX	MIN		
75	37	3775	0.00	0.386	-0.003	2.580	1.898	2.580	2.051
76	37	3776	2.00	0.020	-0.166	-0.030	-0.357	-0.357	-0.992
76	38	3876	2.00	0.115	-0.229	1.027	0.424	1.027	-1.360
77	38	3877	3.00	0.045	-0.368	-0.323	-1.046	-1.046	-2.365
77	39	3977	3.00	0.075	-0.637	-1.410	-2.656	-2.656	-5.030
78	39	3978	5.25	0.068	-0.406	0.649	-0.180	0.649	-3.341
78	40	4078	5.25	0.072	-0.613	0.146	-1.053	-1.053	-1.342
79	40	4079	8.50	0.119	-0.838	1.529	-0.145	1.529	-4.046
79	41	4179	8.50	0.060	-1.125	-3.849	-5.924	-5.924	2.005
80	41	4180	11.83	0.178	-2.189	-6.615	-10.757	-10.757	-3.556
80	42	4280	11.83	0.053	-0.889	-3.145	-4.793	-4.793	6.198
81	42	4281	15.17	0.165	-1.674	-5.107	-8.326	-8.326	-4.992
81	43	4381	15.17	1.720	-0.055	8.214	5.106	8.214	7.479
82	43	4382	19.08	0.373	-0.242	3.114	2.038	3.114	7.246
82	44	4482	19.08	2.179	0.017	10.799	7.016	10.799	11.154
83	44	4483	23.00	1.059	0.230	5.845	4.394	5.845	7.505
83	45	4583	23.00	0.817	-0.185	0.078	-1.676	-1.676	-4.050
84	45	4584	26.25	0.692	-0.081	2.294	0.942	2.294	-0.818
84	46	4684	26.25	0.490	-0.173	0.713	-0.447	0.713	-3.571
85	46	4685	27.33	0.615	0.080	2.369	1.434	2.369	-1.887
85	47	4785	27.33	0.601	-0.079	1.259	0.070	1.259	-0.216
86	47	4786	29.50	0.524	-0.143	1.887	0.720	1.887	-1.703
86	48	4886	29.50	0.457	-0.370	-2.073	-3.520	-3.520	2.888
87	48	4887	34.50	0.206	-1.616	-6.759	-9.947	-9.947	-5.123
87	49	4987	34.50	0.586	-0.508	0.102	-1.812	-1.812	3.891
88	49	4988	39.50	0.523	-0.770	1.160	-1.102	1.160	3.605
88	50	5088	39.50	1.957	-0.185	12.437	8.688	12.437	9.171
89	50	5089	44.00	1.124	-0.385	6.373	3.731	6.373	9.567
89	51	5189	44.00	0.814	-1.056	-1.301	-4.573	-4.573	-5.214
90	51	5190	47.25	0.868	-0.878	2.064	-0.991	2.064	-1.909
90	52	5290	47.25	0.564	-0.713	-0.290	-2.524	-2.524	-3.577
91	52	5291	50.50	0.842	-0.877	2.645	-0.363	2.645	-2.518
91	53	5391	50.50	-0.075	-0.860	-3.770	-5.143	-5.143	1.065
92	53	5392	54.71	0.232	-1.329	-4.828	-7.559	-7.559	-2.605
92	54	5492	54.71	0.401	-1.026	-1.145	-3.641	-3.641	3.466
93	54	5493	57.75	0.264	-0.836	-2.449	-4.375	-4.375	-1.202
93	55	5593	57.75	0.836	-0.313	4.379	2.369	4.379	4.049
94	55	5594	60.79	0.421	-0.401	2.593	1.156	2.593	6.807
94	56	5694	60.79	1.329	-0.393	7.565	4.552	7.565	6.854
95	56	5695	65.00	0.350	-0.029	4.256	3.592	4.256	7.669
95	57	5795	65.00	0.877	-0.394	0.368	-1.856	-1.856	-4.605
96	57	5796	68.25	0.713	-0.069	2.536	1.168	2.536	-1.200
96	58	5896	68.25	0.878	-0.258	0.994	-0.993	0.994	-2.895
97	58	5897	71.50	1.056	-0.050	4.587	2.651	4.587	-0.259
97	59	5997	71.50	0.385	-0.842	-3.764	-5.911	-5.911	1.493
98	59	5998	76.00	0.185	-1.797	-8.702	-12.172	-12.172	-7.210
98	60	6098	76.00	0.289	-0.455	0.234	-1.068	-1.068	3.159
99	60	6099	81.00	0.508	-0.405	1.777	0.178	1.777	5.623
99	61	6199	81.00	1.337	-0.167	9.450	6.818	9.450	7.760
100	61	61100	86.00	0.360	-0.089	3.457	2.671	3.457	8.081
100	62	62100	86.00	0.001	-0.209	-1.014	-1.380	-1.380	-3.531
101	62	62101	88.17	0.079	-0.189	-0.134	-0.602	-0.602	-0.645
101	63	63101	88.17	0.002	-0.212	-1.362	-1.736	-1.736	-4.280
102	63	63102	89.25	0.079	-0.116	0.222	-0.119	0.222	-3.330
102	64	64102	89.25	0.064	-0.218	-1.038	-1.532	-1.532	-2.817
103	64	64103	92.50	0.102	-0.036	1.402	1.161	1.402	-1.630
103	65	65103	92.50	0.002	-0.306	-4.067	-4.606	-4.606	0.133

104	65	65104	96.42	-0.007	-1.225	-7.246	-9.379	-9.379	-1.768
104	66	66104	96.42	0.048	-0.373	-2.345	-3.083	-3.083	2.703
105	66	66105	100.33	0.055	-0.966	-5.302	-7.090	-7.090	-2.173
105	67	67105	100.33	1.134	-0.165	7.570	5.298	7.570	5.005
106	67	67106	103.67	0.401	-0.053	3.919	3.125	3.919	12.175
106	68	68106	103.67	1.369	-0.178	9.564	6.858	9.564	9.280
107	68	68107	107.00	0.830	-0.060	5.535	3.976	5.535	9.333
107	69	69107	107.00	0.413	-0.100	-0.376	-1.273	-1.273	-6.392
108	69	69108	110.25	0.323	-0.072	0.676	-0.014	0.676	-1.343
108	70	70108	110.25	0.148	-0.063	-0.170	-0.540	-0.540	-4.308
109	70	70109	112.50	0.290	-0.075	2.128	1.488	2.128	-2.201
109	71	71109	112.50	0.188	-0.045	0.798	0.391	0.798	-1.636
110	71	71110	113.50	0.106	-0.037	-0.561	-0.811	-0.811	-2.868
110	72	72110	113.50	0.091	-0.020	0.261	0.066	0.261	-0.879
111	72	72111	115.50	0.024	-0.006	-1.794	-1.846	-1.846	-1.433

Controlling LL Interface Shear





The total interface shear force needs to be transferred between faces from over the distance from the point of maximum moment to the Cl of support. The table below tabulates the total shear force over this area and total resistance. It is assumed that the point of maximum moment occurs at midspan between columns.

Strength I

ID	X [FT.]	Str. I [kip/in.]	x1-x0 [in.]	(y0+y1)/ 2 [kip/in]	Fxy [kip]	Total Fxy [kip]	Conc. Resist. [kip]	Steel Resist. [kip]	Total Resist. [kip]	CONC. DC Ratio	STEEL DC Ratio	TOTAL DC Ratio
3775	0	2.580				-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3776	2	-0.357	24	1.112	26.68	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3876	2	1.027	0	0.335	0.00	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3877	3	-1.046	12	-0.010	-0.12	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3977	3	-2.656	0	-1.851	0.00	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
3978	5.25	0.649	27	-1.004	-27.10	-0.53	-422.6	-433.8	-856.4	0.00	0.00	0.00
4078	5.25	-1.053	0	-0.202	0.00	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4079	8.5	1.529	39	0.238	9.27	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4179	8.5	-5.924	0	-2.197	0.00	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4180	11.8333	-10.757	40	-8.340	-333.62	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4280	11.8333	-4.793	0	-7.775	0.00	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4281	15.1667	-8.326	40	-6.559	-262.37	-586.72	-798.3	-819.3	-1617.7	0.73	0.72	0.36
4381	15.1667	8.214	0	-0.056	0.00	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4382	19.0833	3.114	47	5.664	266.21	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4482	19.0833	10.799	0	6.956	0.00	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4483	23	5.845	47	8.322	391.13	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4583	23	-1.676	0	2.084	0.00	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4584	26.25	2.294	39	0.309	12.05	669.40	892.3	915.7	1808.0	0.75	0.73	0.37
4684	26.25	0.713	0	1.504	0.00	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4685	27.3333	2.369	13	1.541	20.04	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4785	27.3333	1.259	0	1.814	0.00	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4786	29.5	1.887	26	1.573	40.90	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4886	29.5	-3.520	0	-0.816	0.00	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4887	34.5	-9.947	60	-6.734	-404.02	-343.09	-664.2	-681.6	-1345.8	0.52	0.50	0.25
4987	34.5	-1.812	0	-5.880	0.00	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
4988	39.5	1.160	60	-0.326	-19.56	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5088	39.5	12.437	0	6.798	0.00	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5089	44	6.373	54	9.405	507.86	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5189	44	-4.573	0	0.900	0.00	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5190	47.25	2.064	39	-1.255	-48.93	439.37	1026.4	1053.4	2079.8	0.43	0.42	0.21
5290	47.25	-2.524	0	-0.230	0.00	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5291	50.5	2.645	39	0.060	2.36	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5391	50.5	-5.143	0	-1.249	0.00	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5392	54.7083	-7.559	50.5	-6.351	-320.72	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5492	54.7083	-3.641	0	-5.600	0.00	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5493	57.75	-4.375	36.5	-4.008	-146.29	-464.65	-845.3	-867.5	-1712.8	0.55	0.54	0.27
5593	57.75	4.379	0	0.002	0.00	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5594	60.7917	2.593	36.5	3.486	127.25	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5694	60.7917	7.565	0	5.079	0.00	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5695	65	4.256	50.5	5.910	298.47	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5795	65	-1.856	0	1.200	0.00	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5796	68.25	2.536	39	0.340	13.27	438.99	845.3	867.5	1712.8	0.52	0.51	0.26
5896	68.25	0.994	0	1.765	0.00	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
5897	71.5	4.587	39	2.791	108.84	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
5997	71.5	-5.911	0	-0.662	0.00	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
5998	76	-12.172	54	-9.042	-488.25	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
6098	76	-1.068	0	-6.620	0.00	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
6099	81	1.777	60	0.354	21.27	-358.14	-1026.4	-1053.4	-2079.8	0.35	0.34	0.17
6199	81	9.450	0	5.614	0.00	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
61100	86	3.457	60	6.454	387.21	351.61	664.2	681.6	1345.8	0.53	0.52	0.26

62100	86	-1.380	0	1.039	0.00	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
62101	88.1667	-0.602	26	-0.991	-25.76	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
63101	88.1667	-1.736	0	-1.169	0.00	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
63102	89.25	0.222	13	-0.757	-9.84	351.61	664.2	681.6	1345.8	0.53	0.52	0.26
64102	89.25	-1.532	0	-0.655	0.00	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
64103	92.5	1.402	39	-0.065	-2.54	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
65103	92.5	-4.606	0	-1.602	0.00	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
65104	96.4167	-9.379	47	-6.993	-328.65	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
66104	96.4167	-3.083	0	-6.231	0.00	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
66105	100.333	-7.090	47	-5.086	-239.06	-570.25	-892.3	-915.7	-1808.0	0.64	0.62	0.32
67105	100.333	7.570	0	0.240	0.00	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
67106	103.667	3.919	40	5.744	229.78	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
68106	103.667	9.564	0	6.741	0.00	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
68107	107	5.535	40	7.549	301.97	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
69107	107	-1.273	0	2.131	0.00	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
69108	110.25	0.676	39	-0.298	-11.63	520.11	798.3	819.3	1617.7	0.65	0.63	0.32
70108	110.25	-0.540	0	0.068	0.00	2.33	422.6	433.8	856.4	0.01	0.01	0.00
70109	112.5	2.128	27	0.794	21.43	2.33	422.6	433.8	856.4	0.01	0.01	0.00
71109	112.5	0.798	0	1.463	0.00	2.33	422.6	433.8	856.4	0.01	0.01	0.00
71110	113.5	-0.811	12	-0.007	-0.08	2.33	422.6	433.8	856.4	0.01	0.01	0.00
72110	113.5	0.261	0	-0.275	0.00	2.33	422.6	433.8	856.4	0.01	0.01	0.00
72111	115.5	-1.846	24	-0.793	-19.02	2.33	422.6	433.8	856.4	0.01	0.01	0.00

Strength I

From the table and graph above, it can be seen that the concrete alone (ignoring steel) has sufficient capacity to resist the applied interface shear. Additionally, the steel resistance alone (ignoring concrete) has sufficient capacity to resist the interface shear applied.

Max.

Concrete
Only DC

Steel
Only DC

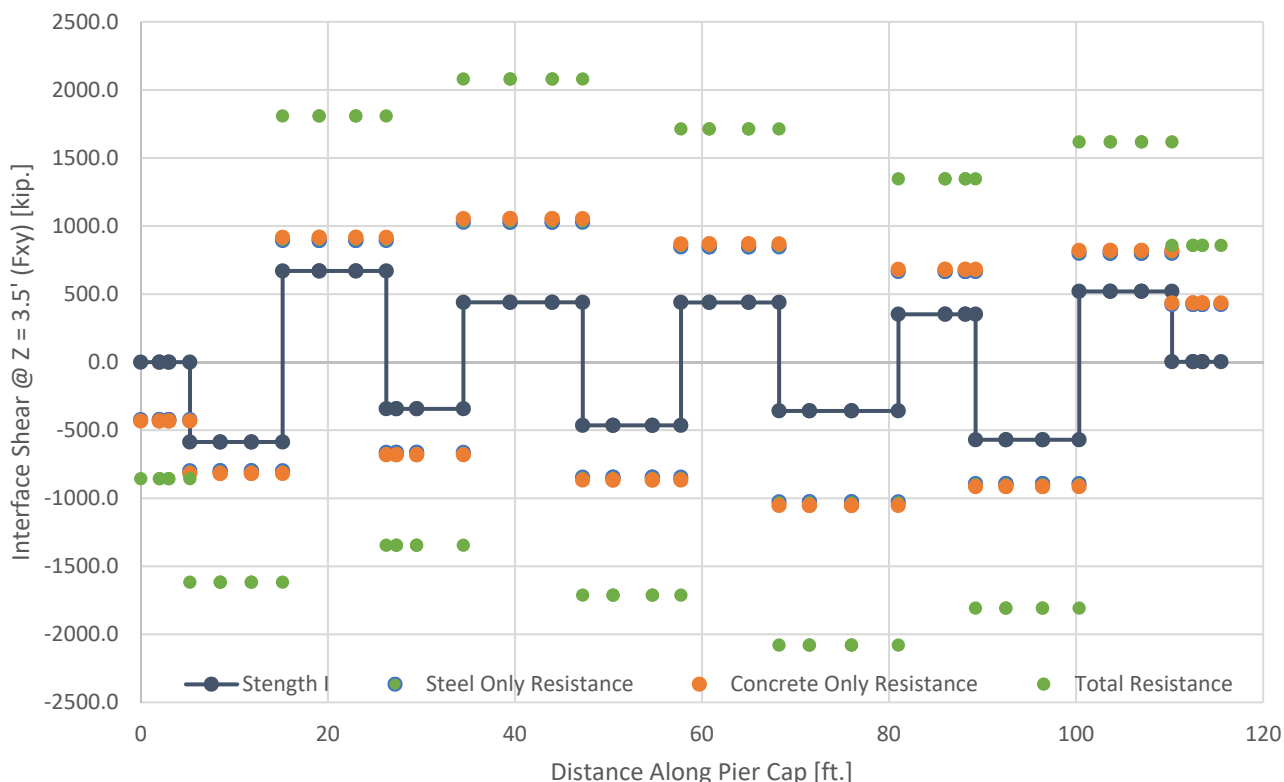
Total
DC

0.75

0.73

0.37

Controlling Strength I Interface Shear



Extreme Event I

ID	X [FT.]	E.E. [kip/in.]	x1-x0 [in.]	(y0+y1)/ 2 [kip/in]	Fxy [kip]	Total Fxy [kip]	Conc. Resist. [kip]	Steel Resist. [kip]	Total Resist. [kip]	CONC. DC Ratio	STEEL DC Ratio	TOTAL DC Ratio
3775	0.00	2.051				-122.64	-422.6	-433.8	-856.4	0.29	0.28	0.14
3776	2.00	-0.992	24	0.530	12.71	-122.64	-422.6	-433.8	-856.4	0.29	0.28	0.14
3876	2.00	-1.360	0	-1.176	0.00	-122.64	-422.6	-433.8	-856.4	0.29	0.28	0.14
3877	3.00	-2.365	12	-1.863	-22.35	-122.64	-422.6	-433.8	-856.4	0.29	0.28	0.14
3977	3.00	-5.030	0	-3.697	0.00	-122.64	-422.6	-433.8	-856.4	0.29	0.28	0.14
3978	5.25	-3.341	27	-4.185	-113.00	-122.64	-422.6	-433.8	-856.4	0.29	0.28	0.14
4078	5.25	-1.342	0	-2.341	0.00	-111.97	-798.3	-819.3	-1617.7	0.14	0.14	0.07
4079	8.50	-4.046	39	-2.694	-105.06	-111.97	-798.3	-819.3	-1617.7	0.14	0.14	0.07
4179	8.50	2.005	0	-1.021	0.00	-111.97	-798.3	-819.3	-1617.7	0.14	0.14	0.07
4180	11.83	-3.556	40	-0.776	-31.02	-111.97	-798.3	-819.3	-1617.7	0.14	0.14	0.07
4280	11.83	6.198	0	1.321	0.00	-111.97	-798.3	-819.3	-1617.7	0.14	0.14	0.07
4281	15.17	-4.992	40	0.603	24.12	-111.97	-798.3	-819.3	-1617.7	0.14	0.14	0.07
4381	15.17	7.479	0	1.243	0.00	689.59	892.3	915.7	1808.0	0.77	0.75	0.38
4382	19.08	7.246	47	7.362	346.03	689.59	892.3	915.7	1808.0	0.77	0.75	0.38
4482	19.08	11.154	0	9.200	0.00	689.59	892.3	915.7	1808.0	0.77	0.75	0.38
4483	23.00	7.505	47	9.329	438.48	689.59	892.3	915.7	1808.0	0.77	0.75	0.38
4583	23.00	-4.050	0	1.727	0.00	689.59	892.3	915.7	1808.0	0.77	0.75	0.38
4584	26.25	-0.818	39	-2.434	-94.92	689.59	892.3	915.7	1808.0	0.77	0.75	0.38
4684	26.25	-3.571	0	-2.194	0.00	-127.46	-664.2	-681.6	-1345.8	0.19	0.19	0.09
4685	27.33	-1.887	13	-2.729	-35.47	-127.46	-664.2	-681.6	-1345.8	0.19	0.19	0.09
4785	27.33	-0.216	0	-1.051	0.00	-127.46	-664.2	-681.6	-1345.8	0.19	0.19	0.09
4786	29.50	-1.703	26	-0.959	-24.94	-127.46	-664.2	-681.6	-1345.8	0.19	0.19	0.09
4886	29.50	2.888	0	0.593	0.00	-127.46	-664.2	-681.6	-1345.8	0.19	0.19	0.09
4887	34.50	-5.123	60	-1.117	-67.05	-127.46	-664.2	-681.6	-1345.8	0.19	0.19	0.09
4987	34.50	3.891	0	-0.616	0.00	591.89	1026.4	1053.4	2079.8	0.58	0.56	0.28
4988	39.50	3.605	60	3.748	224.89	591.89	1026.4	1053.4	2079.8	0.58	0.56	0.28
5088	39.50	9.171	0	6.388	0.00	591.89	1026.4	1053.4	2079.8	0.58	0.56	0.28
5089	44.00	9.567	54	9.369	505.91	591.89	1026.4	1053.4	2079.8	0.58	0.56	0.28
5189	44.00	-5.214	0	2.176	0.00	591.89	1026.4	1053.4	2079.8	0.58	0.56	0.28
5190	47.25	-1.909	39	-3.562	-138.92	591.89	1026.4	1053.4	2079.8	0.58	0.56	0.28
5290	47.25	-3.577	0	-2.743	0.00	-116.40	-845.3	-867.5	-1712.8	0.14	0.13	0.07
5291	50.50	-2.518	39	-3.047	-118.84	-116.40	-845.3	-867.5	-1712.8	0.14	0.13	0.07
5391	50.50	1.065	0	-0.726	0.00	-116.40	-845.3	-867.5	-1712.8	0.14	0.13	0.07
5392	54.71	-2.605	50.5	-0.770	-38.89	-116.40	-845.3	-867.5	-1712.8	0.14	0.13	0.07
5492	54.71	3.466	0	0.431	0.00	-116.40	-845.3	-867.5	-1712.8	0.14	0.13	0.07
5493	57.75	-1.202	36.5	1.132	41.33	-116.40	-845.3	-867.5	-1712.8	0.14	0.13	0.07
5593	57.75	4.049	0	1.423	0.00	451.62	845.3	867.5	1712.8	0.53	0.52	0.26
5594	60.79	6.807	36.5	5.428	198.11	451.62	845.3	867.5	1712.8	0.53	0.52	0.26
5694	60.79	6.854	0	6.830	0.00	451.62	845.3	867.5	1712.8	0.53	0.52	0.26
5695	65.00	7.669	50.5	7.261	366.70	451.62	845.3	867.5	1712.8	0.53	0.52	0.26
5795	65.00	-4.605	0	1.532	0.00	451.62	845.3	867.5	1712.8	0.53	0.52	0.26
5796	68.25	-1.200	39	-2.902	-113.19	451.62	845.3	867.5	1712.8	0.53	0.52	0.26
5896	68.25	-2.895	0	-2.048	0.00	47.61	-1026.4	-1053.4	-2079.8	-0.05	-0.05	-0.02
5897	71.50	-0.259	39	-1.577	-61.51	47.61	-1026.4	-1053.4	-2079.8	-0.05	-0.05	-0.02
5997	71.50	1.493	0	0.617	0.00	47.61	-1026.4	-1053.4	-2079.8	-0.05	-0.05	-0.02
5998	76.00	-7.210	54	-2.859	-154.36	47.61	-1026.4	-1053.4	-2079.8	-0.05	-0.05	-0.02
6098	76.00	3.159	0	-2.026	0.00	47.61	-1026.4	-1053.4	-2079.8	-0.05	-0.05	-0.02
6099	81.00	5.623	60	4.391	263.48	47.61	-1026.4	-1053.4	-2079.8	-0.05	-0.05	-0.02
6199	81.00	7.760	0	6.692	0.00	371.50	664.2	681.6	1345.8	0.56	0.55	0.28
61100	86.00	8.081	60	7.921	475.25	371.50	664.2	681.6	1345.8	0.56	0.55	0.28
62100	86.00	-3.531	0	2.275	0.00	371.50	664.2	681.6	1345.8	0.56	0.55	0.28
62101	88.17	-0.645	26	-2.088	-54.28	371.50	664.2	681.6	1345.8	0.56	0.55	0.28
63101	88.17	-4.280	0	-2.462	0.00	371.50	664.2	681.6	1345.8	0.56	0.55	0.28
63102	89.25	-3.330	13	-3.805	-49.47	371.50	664.2	681.6	1345.8	0.56	0.55	0.28

64102	89.25	-2.817	0	-3.074	0.00	-112.67	-892.3	-915.7	-1808.0	0.13	0.12	0.06
64103	92.50	-1.630	39	-2.224	-86.72	-112.67	-892.3	-915.7	-1808.0	0.13	0.12	0.06
65103	92.50	0.133	0	-0.748	0.00	-112.67	-892.3	-915.7	-1808.0	0.13	0.12	0.06
65104	96.42	-1.768	47	-0.817	-38.41	-112.67	-892.3	-915.7	-1808.0	0.13	0.12	0.06
66104	96.42	2.703	0	0.468	0.00	-112.67	-892.3	-915.7	-1808.0	0.13	0.12	0.06
66105	100.33	-2.173	47	0.265	12.46	-112.67	-892.3	-915.7	-1808.0	0.13	0.12	0.06
67105	100.33	5.005	0	1.416	0.00	565.03	798.3	819.3	1617.7	0.71	0.69	0.35
67106	103.67	12.175	40	8.590	343.60	565.03	798.3	819.3	1617.7	0.71	0.69	0.35
68106	103.67	9.280	0	10.728	0.00	565.03	798.3	819.3	1617.7	0.71	0.69	0.35
68107	107.00	9.333	40	9.306	372.26	565.03	798.3	819.3	1617.7	0.71	0.69	0.35
69107	107.00	-6.392	0	1.470	0.00	565.03	798.3	819.3	1617.7	0.71	0.69	0.35
69108	110.25	-1.343	39	-3.867	-150.83	565.03	798.3	819.3	1617.7	0.71	0.69	0.35
70108	110.25	-4.308	0	-2.825	0.00	-142.64	422.6	433.8	856.4	-0.34	-0.33	-0.17
70109	112.50	-2.201	27	-3.254	-87.87	-142.64	422.6	433.8	856.4	-0.34	-0.33	-0.17
71109	112.50	-1.636	0	-1.918	0.00	-142.64	422.6	433.8	856.4	-0.34	-0.33	-0.17
71110	113.50	-2.868	12	-2.252	-27.02	-142.64	422.6	433.8	856.4	-0.34	-0.33	-0.17
72110	113.50	-0.879	0	-1.874	0.00	-142.64	422.6	433.8	856.4	-0.34	-0.33	-0.17
72111	115.50	-1.433	24	-1.156	-27.75	-142.64	422.6	433.8	856.4	-0.34	-0.33	-0.17

Extreme Event I

From the table and graph above, it can be seen that the concrete alone (ignoring steel) has sufficient capacity to resist the applied interface shear. Additionally, the steel resistance alone (ignoring concrete) has sufficient capacity to resist the interface shear applied.

Max.

Concrete
Only DC

Steel
Only DC

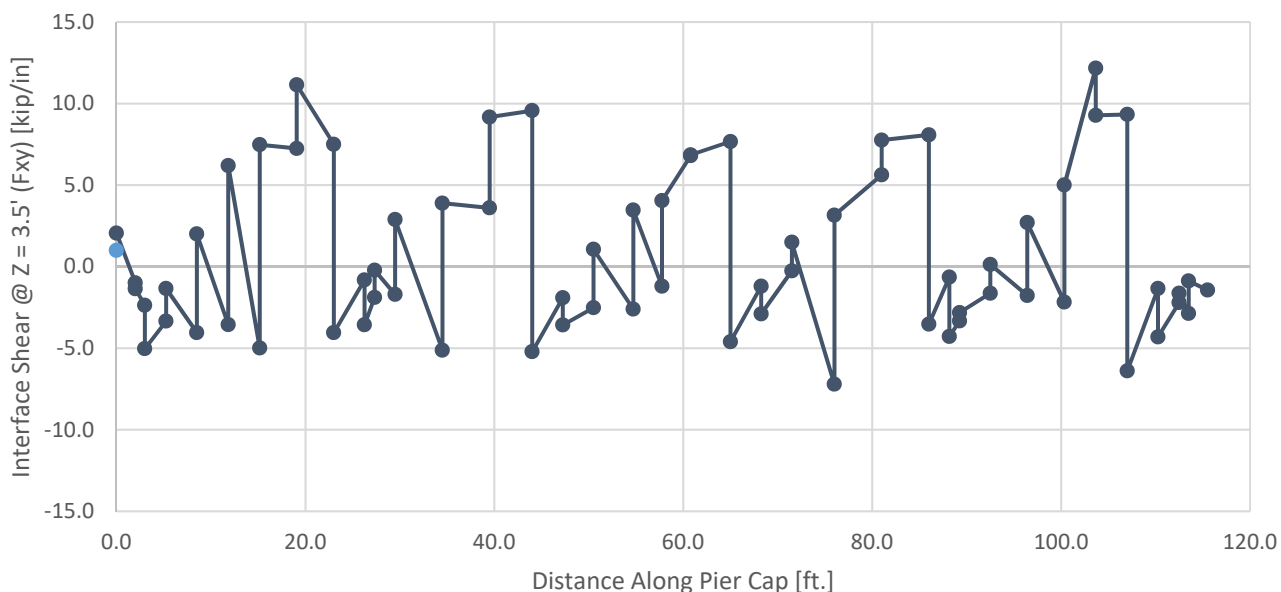
Total
DC

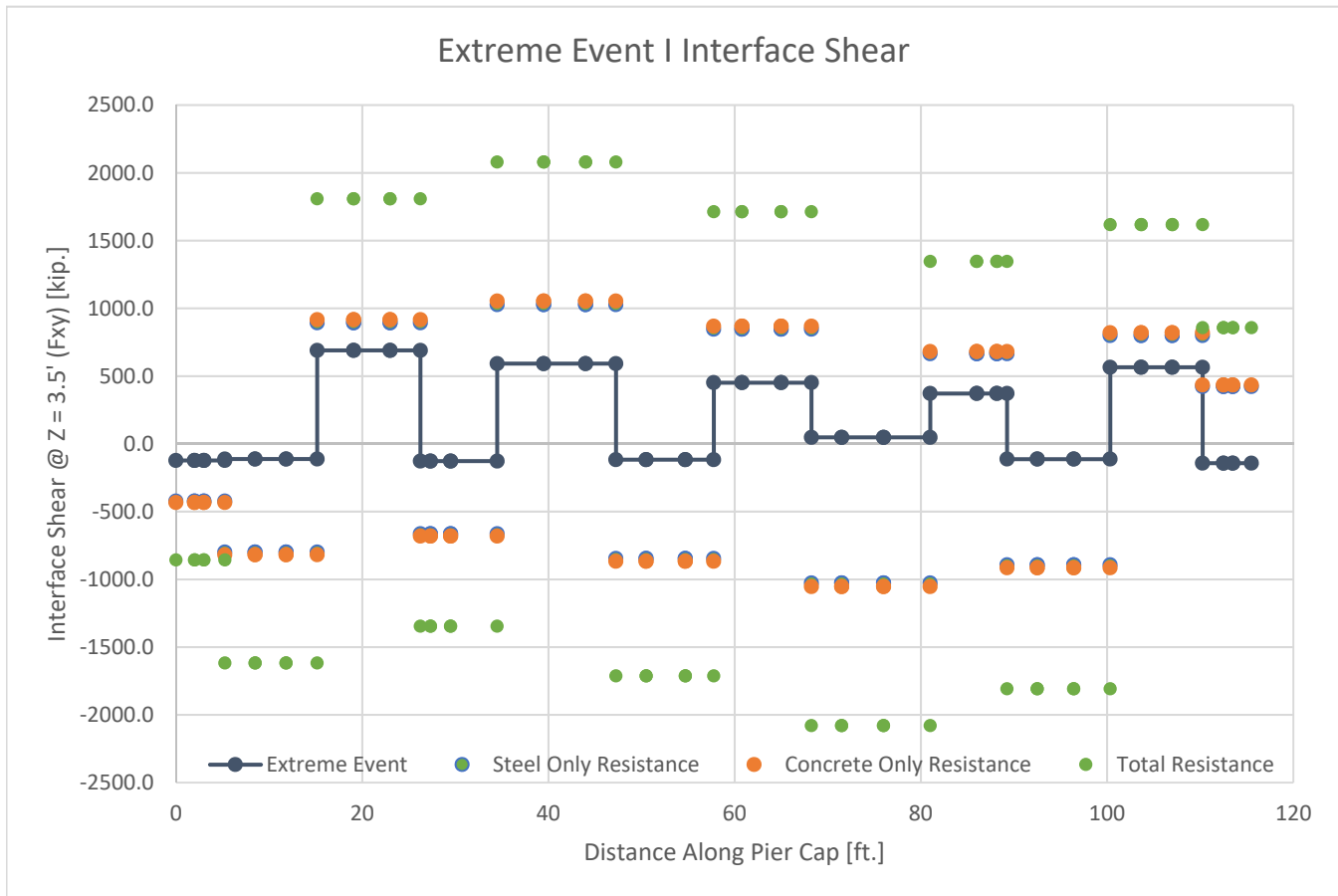
0.77

0.75

0.38

Extreme Event I Interface Shear





Combined Vertical and Interface Shear Results

Determine required vertical reinforcement based on AASHTO 5.7.3.3

Vertical shear bar size	0.44 [in.]	Steel yield stress	60.0 [ksi]
Number of legs	4 []	Concrete Compressive Stress	3.50 [ksi]
Spacing of reinforcement	8.5 [in.]	Beta, β	2.00 []
		Resistance factor	0.90 []
Cap width	102 [in.]	Clear Cover	2 [in.]
Cap depth	120 [in.]	Bar Diameter	1.41 [in.]

$$V_c = 0.0316 \beta \lambda \sqrt{f'_c} b_v d_v$$

$$V_s = \frac{A_v f_y d_v (\cot \theta + \cot \alpha) \sin \alpha}{s}$$

Effective shear depth per AASHTO 5.7.2.8	114.57 [in.]
Factored concrete shear resistance per AASHTO Eq. 5.7.3.3-3	1302.49 [kip]
Factored steel shear resistance per AASHTO Eq. 5.7.3.3-4	1281.02 [kip]
Factored steel shear resistance per KSI of reinforcement	21.35 [kip/ksi]

Based on the information above and the factored shear load, the amount of reinforcement required for vertical shear will be determined.

The amount of stress required for interface shear reinforcement will be determine by multiplying the yield stress of vertical shear reinforcement by the interface shear "Steel DC Ratio" x "Percent of total load carried by reinforcement".

The required shear reinforcement for vertical shear and interface shear will then be combined along the length of the pier cap. The total stress required will then be compared to the steel yield stress.

These calculations are extremely conservative based on the following:

- * Vertical shear and interface shear are independent of each other and therefore require their own reinforcement. Per AASHTO 5.7.4.3 this is not the case.
- * Vertical shear and interface shear occur at the same location vertically in pier cap such that there needs to be sufficient vertical shear reinforcement to handle both loads at the same time.
- * Interface shear results assume zero resistance from the concrete along the shear plane.

Calculations will be performed on results from LARSA Model and provided loads from RcPier.

Table Headers Requiring Description

VsReq	Shear required to be carried by steel - $V_u - \Phi V_c \geq 0$
Fsv	Steel stress in stirrups due to VsReq
FyAvail.	Available steel stress to carry interface shear - $F_y - F_{svReq}$.
FsInter	Steel stress due to interface shear
DC	Demand to capacity ratio $(F_{sv} + F_{sInter}) / F_y$

Strength I

Elements	X [ft.]	MAX	MIN	Cont.	VsReq	Fsv	FyAvail.	FsInter	DC
P1, P37, P73, P109, P145, P181, P219, P2	0	0.00	0.00	0.00	0.00	0.00	60.00	0.04	0.00
P1, P37, P73, P109, P145, P181, P219, P2	0.25	-3.98	-3.98	3.98	0.00	0.00	60.00	0.04	0.00
P1, P37, P73, P109, P145, P181, P219, P2	0.5	-7.97	-7.97	7.97	0.00	0.00	60.00	0.04	0.00
P221, P222, P223, P509, P510, P511, P79	0.75	-11.95	-11.95	11.95	0.00	0.00	60.00	0.04	0.00
P221, P222, P223, P509, P510, P511, P79	1	-15.94	-15.94	15.94	0.00	0.00	60.00	0.04	0.00
P221, P222, P223, P509, P510, P511, P79	1.25	-19.92	-19.92	19.92	0.00	0.00	60.00	0.04	0.00
P224, P225, P226, P512, P513, P514, P80	1.5	-23.91	-23.91	23.91	0.00	0.00	60.00	0.04	0.00
P224, P225, P226, P512, P513, P514, P80	1.75	-27.89	-27.89	27.89	0.00	0.00	60.00	0.04	0.00
P224, P225, P226, P512, P513, P514, P80	2	-31.88	-31.88	31.88	0.00	0.00	60.00	0.04	0.00
P2, P38, P74, P110, P146, P182, P227, P2	2.25	630.96	495.36	630.96	0.00	0.00	60.00	0.04	0.00
P229, P230, P231, P517, P518, P519, P80	2.5	626.97	491.37	626.97	0.00	0.00	60.00	0.04	0.00
P232, P233, P234, P520, P521, P522, P80	2.75	622.99	487.39	622.99	0.00	0.00	60.00	0.04	0.00
P232, P233, P234, P520, P521, P522, P80	3	619.00	483.40	619.00	0.00	0.00	60.00	0.04	0.00
P3, P39, P75, P111, P147, P183, P235, P2	3.25	-97.32	-236.76	236.76	0.00	0.00	60.00	0.04	0.00
P3, P39, P75, P111, P147, P183, P235, P2	3.5	-101.30	-240.74	240.74	0.00	0.00	60.00	0.04	0.00
P3, P39, P75, P111, P147, P183, P235, P2	3.75	-105.29	-244.73	244.73	0.00	0.00	60.00	0.04	0.00
P237, P238, P239, P525, P526, P527, P81	4	-109.27	-248.71	248.71	0.00	0.00	60.00	0.04	0.00
P237, P238, P239, P525, P526, P527, P81	4.25	-113.25	-252.70	252.70	0.00	0.00	60.00	0.04	0.00
P237, P238, P239, P525, P526, P527, P81	4.5	-117.24	-256.68	256.68	0.00	0.00	60.00	0.04	0.00
P240, P241, P242, P528, P529, P530, P81	4.75	-121.22	-260.67	260.67	0.00	0.00	60.00	0.04	0.00
P240, P241, P242, P528, P529, P530, P81	5	-125.21	-264.65	264.65	0.00	0.00	60.00	0.04	0.00
P240, P241, P242, P528, P529, P530, P81	5.25	-129.19	-268.64	268.64	0.00	0.00	60.00	21.20	0.35
P4, P40, P76, P112, P148, P184, P243, P2	5.5	-133.18	-272.62	272.62	0.00	0.00	60.00	21.20	0.35
P4, P40, P76, P112, P148, P184, P243, P2	5.75	-137.16	-276.61	276.61	0.00	0.00	60.00	21.20	0.35
P4, P40, P76, P112, P148, P184, P243, P2	6	-141.15	-280.59	280.59	0.00	0.00	60.00	21.20	0.35
P4, P40, P76, P112, P148, P184, P243, P2	6.25	-145.13	-284.57	284.57	0.00	0.00	60.00	21.20	0.35
P245, P246, P247, P533, P534, P535, P82	6.5	-149.12	-288.56	288.56	0.00	0.00	60.00	21.20	0.35
P245, P246, P247, P533, P534, P535, P82	6.75	-153.10	-292.54	292.54	0.00	0.00	60.00	21.20	0.35
P245, P246, P247, P533, P534, P535, P82	7	-157.08	-296.53	296.53	0.00	0.00	60.00	21.20	0.35
P245, P246, P247, P533, P534, P535, P82	7.25	-161.07	-300.51	300.51	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	7.5	-165.05	-304.50	304.50	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	7.75	-169.04	-308.48	308.48	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	8	-173.02	-312.47	312.47	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	8.25	-177.01	-316.45	316.45	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	8.5	-180.99	-320.44	320.44	0.00	0.00	60.00	21.20	0.35
P5, P41, P77, P113, P149, P185, P251, P2	8.75	1063.47	961.36	1063.47	0.00	0.00	60.00	21.20	0.35
P5, P41, P77, P113, P149, P185, P251, P2	9	1059.48	957.37	1059.48	0.00	0.00	60.00	21.20	0.35
P5, P41, P77, P113, P149, P185, P251, P2	9.25	1055.50	953.39	1055.50	0.00	0.00	60.00	21.20	0.35
P5, P41, P77, P113, P149, P185, P251, P2	9.5	1051.51	949.40	1051.51	0.00	0.00	60.00	21.20	0.35
P253, P254, P255, P541, P542, P543, P82	9.75	1047.53	945.42	1047.53	0.00	0.00	60.00	21.20	0.35
P253, P254, P255, P541, P542, P543, P82	10	1043.55	941.43	1043.55	0.00	0.00	60.00	21.20	0.35
P253, P254, P255, P541, P542, P543, P82	10.25	1039.56	937.45	1039.56	0.00	0.00	60.00	21.20	0.35
P253, P254, P255, P541, P542, P543, P82	10.5	1035.58	933.46	1035.58	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	10.75	1031.59	929.48	1031.59	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	11	1027.61	925.49	1027.61	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	11.25	1023.62	921.51	1023.62	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	11.5	1019.64	917.53	1019.64	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	11.75	1015.65	913.54	1015.65	0.00	0.00	60.00	21.20	0.35
P6, P42, P78, P114, P150, P186, P259, P2	12	1011.67	909.56	1011.67	0.00	0.00	60.00	21.20	0.35
P6, P42, P78, P114, P150, P186, P259, P2	12.25	1007.68	905.57	1007.68	0.00	0.00	60.00	21.20	0.35
P6, P42, P78, P114, P150, P186, P259, P2	12.5	1003.70	901.59	1003.70	0.00	0.00	60.00	21.20	0.35
P6, P42, P78, P114, P150, P186, P259, P2	12.75	999.72	897.60	999.72	0.00	0.00	60.00	21.20	0.35
P261, P262, P263, P549, P550, P551, P83	13	995.73	893.62	995.73	0.00	0.00	60.00	21.20	0.35
P261, P262, P263, P549, P550, P551, P83	13.25	991.75	889.63	991.75	0.00	0.00	60.00	21.20	0.35
P261, P262, P263, P549, P550, P551, P83	13.5	987.76	885.65	987.76	0.00	0.00	60.00	21.20	0.35
P261, P262, P263, P549, P550, P551, P83	13.75	983.78	881.66	983.78	0.00	0.00	60.00	21.20	0.35

P261, P262, P263, P549, P550, P551, P83	14	979.79	877.68	979.79	0.00	0.00	60.00	21.20	0.35
P264, P265, P266, P552, P553, P554, P84	14.25	975.81	873.69	975.81	0.00	0.00	60.00	21.20	0.35
P264, P265, P266, P552, P553, P554, P84	14.5	971.82	869.71	971.82	0.00	0.00	60.00	21.20	0.35
P264, P265, P266, P552, P553, P554, P84	14.75	967.84	865.73	967.84	0.00	0.00	60.00	21.20	0.35
P264, P265, P266, P552, P553, P554, P84	15	963.85	861.74	963.85	0.00	0.00	60.00	21.20	0.35
P7, P43, P79, P115, P151, P187, P267, P2	15.25	-742.14	-847.05	847.05	0.00	0.00	60.00	21.65	0.36
P7, P43, P79, P115, P151, P187, P267, P2	15.5	-746.13	-851.04	851.04	0.00	0.00	60.00	21.65	0.36
P7, P43, P79, P115, P151, P187, P267, P2	15.75	-750.11	-855.02	855.02	0.00	0.00	60.00	21.65	0.36
P7, P43, P79, P115, P151, P187, P267, P2	16	-754.09	-859.01	859.01	0.00	0.00	60.00	21.65	0.36
P7, P43, P79, P115, P151, P187, P267, P2	16.25	-758.08	-862.99	862.99	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	16.5	-762.06	-866.97	866.97	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	16.75	-766.05	-870.96	870.96	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	17	-770.03	-874.94	874.94	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	17.25	-774.02	-878.93	878.93	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	17.5	-778.00	-882.91	882.91	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	17.75	-781.99	-886.90	886.90	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	18	-785.97	-890.88	890.88	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	18.25	-789.96	-894.87	894.87	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	18.5	-793.94	-898.85	898.85	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	18.75	-797.92	-902.84	902.84	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	19	-801.91	-906.82	906.82	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	19.25	-805.89	-910.80	910.80	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	19.5	-809.88	-914.79	914.79	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	19.75	-813.86	-918.77	918.77	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	20	-817.85	-922.76	922.76	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	20.25	-821.83	-926.74	926.74	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	20.5	-825.82	-930.73	930.73	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	20.75	-829.80	-934.71	934.71	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	21	-833.79	-938.70	938.70	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	21.25	-837.77	-942.68	942.68	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	21.5	-841.76	-946.67	946.67	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	21.75	-845.74	-950.65	950.65	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	22	-849.72	-954.64	954.64	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	22.25	-853.71	-958.62	958.62	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	22.5	-857.69	-962.60	962.60	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	22.75	-861.68	-966.59	966.59	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	23	-865.66	-970.57	970.57	0.00	0.00	60.00	21.65	0.36
P9, P45, P81, P117, P153, P189, P283, P2	23.25	406.64	199.88	406.64	0.00	0.00	60.00	21.65	0.36
P9, P45, P81, P117, P153, P189, P283, P2	23.5	402.65	195.89	402.65	0.00	0.00	60.00	21.65	0.36
P9, P45, P81, P117, P153, P189, P283, P2	23.75	398.67	191.91	398.67	0.00	0.00	60.00	21.65	0.36
P9, P45, P81, P117, P153, P189, P283, P2	24	394.68	187.92	394.68	0.00	0.00	60.00	21.65	0.36
P285, P286, P287, P573, P574, P575, P86	24.25	390.70	183.94	390.70	0.00	0.00	60.00	21.65	0.36
P285, P286, P287, P573, P574, P575, P86	24.5	386.71	179.95	386.71	0.00	0.00	60.00	21.65	0.36
P285, P286, P287, P573, P574, P575, P86	24.75	382.73	175.97	382.73	0.00	0.00	60.00	21.65	0.36
P285, P286, P287, P573, P574, P575, P86	25	378.74	171.99	378.74	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	25.25	374.76	168.00	374.76	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	25.5	370.77	164.02	370.77	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	25.75	366.79	160.03	366.79	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	26	362.81	156.05	362.81	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	26.25	358.82	152.06	358.82	0.00	0.00	60.00	14.90	0.25
P10, P46, P82, P118, P154, P190, P291, P	26.5	354.84	148.08	354.84	0.00	0.00	60.00	14.90	0.25
P293, P294, P295, P581, P582, P583, P86	26.75	350.85	144.09	350.85	0.00	0.00	60.00	14.90	0.25
P296, P297, P298, P584, P585, P586, P87	27	346.87	140.11	346.87	0.00	0.00	60.00	14.90	0.25
P296, P297, P298, P584, P585, P586, P87	27.25	342.88	136.12	342.88	0.00	0.00	60.00	14.90	0.25
P11, P47, P83, P119, P155, P191, P299, P	27.5	-429.14	-612.98	612.98	0.00	0.00	60.00	14.90	0.25
P11, P47, P83, P119, P155, P191, P299, P	27.75	-433.13	-616.96	616.96	0.00	0.00	60.00	14.90	0.25
P11, P47, P83, P119, P155, P191, P299, P	28	-437.11	-620.94	620.94	0.00	0.00	60.00	14.90	0.25
P301, P302, P303, P589, P590, P591, P87	28.25	-441.10	-624.93	624.93	0.00	0.00	60.00	14.90	0.25
P301, P302, P303, P589, P590, P591, P87	28.5	-445.08	-628.91	628.91	0.00	0.00	60.00	14.90	0.25

P301, P302, P303, P589, P590, P591, P87	28.75	-449.07	-632.90	632.90	0.00	0.00	60.00	14.90	0.25
P304, P305, P306, P592, P593, P594, P88	29	-453.05	-636.88	636.88	0.00	0.00	60.00	14.90	0.25
P304, P305, P306, P592, P593, P594, P88	29.25	-457.04	-640.87	640.87	0.00	0.00	60.00	14.90	0.25
P304, P305, P306, P592, P593, P594, P88	29.5	-461.02	-644.85	644.85	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	29.75	578.58	397.48	578.58	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	30	574.59	393.49	574.59	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	30.25	570.61	389.51	570.61	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	30.5	566.62	385.53	566.62	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	30.75	562.64	381.54	562.64	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	31	558.65	377.56	558.65	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	31.25	554.67	373.57	554.67	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	31.5	550.69	369.59	550.69	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	31.75	546.70	365.60	546.70	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	32	542.72	361.62	542.72	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	32.25	538.73	357.63	538.73	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	32.5	534.75	353.65	534.75	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	32.75	530.76	349.66	530.76	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	33	526.78	345.68	526.78	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	33.25	522.79	341.70	522.79	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	33.5	518.81	337.71	518.81	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	33.75	514.82	333.73	514.82	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	34	510.84	329.74	510.84	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	34.25	506.86	325.76	506.86	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	34.5	502.87	321.77	502.87	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	34.75	498.89	317.79	498.89	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	35	494.90	313.80	494.90	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	35.25	490.92	309.82	490.92	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	35.5	486.93	305.83	486.93	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	35.75	482.95	301.85	482.95	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	36	478.96	297.87	478.96	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	36.25	474.98	293.88	474.98	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	36.5	470.99	289.90	470.99	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	36.75	467.01	285.91	467.01	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	37	463.02	281.93	463.02	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	37.25	459.04	277.94	459.04	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	37.5	455.06	273.96	455.06	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	37.75	451.07	269.97	451.07	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	38	447.09	265.99	447.09	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	38.25	443.10	262.00	443.10	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	38.5	439.12	258.02	439.12	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	38.75	435.13	254.03	435.13	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	39	431.15	250.05	431.15	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	39.25	427.16	246.07	427.16	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	39.5	423.18	242.08	423.18	0.00	0.00	60.00	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	39.75	-979.41	-1304.18	1304.18	1.69	0.08	59.92	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	40	-983.40	-1308.17	1308.17	5.67	0.27	59.73	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	40.25	-987.38	-1312.15	1312.15	9.66	0.45	59.55	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	40.5	-991.37	-1316.13	1316.13	13.64	0.64	59.36	12.35	0.22
P14, P50, P86, P122, P158, P194, P323, P	40.75	-995.35	-1320.12	1320.12	17.63	0.83	59.17	12.35	0.22
P14, P50, P86, P122, P158, P194, P323, P	41	-999.34	-1324.10	1324.10	21.61	1.01	58.99	12.35	0.22
P325, P326, P327, P613, P614, P615, P90	41.25	-1003.32	-1328.09	1328.09	25.60	1.20	58.80	12.35	0.23
P325, P326, P327, P613, P614, P615, P90	41.5	-1007.31	-1332.07	1332.07	29.58	1.39	58.61	12.35	0.23
P325, P326, P327, P613, P614, P615, P90	41.75	-1011.29	-1336.06	1336.06	33.57	1.57	58.43	12.35	0.23
P325, P326, P327, P613, P614, P615, P90	42	-1015.28	-1340.04	1340.04	37.55	1.76	58.24	12.35	0.24
P325, P326, P327, P613, P614, P615, P90	42.25	-1019.26	-1344.03	1344.03	41.53	1.95	58.05	12.35	0.24
P325, P326, P327, P613, P614, P615, P90	42.5	-1023.24	-1348.01	1348.01	45.52	2.13	57.87	12.35	0.24
P328, P329, P330, P616, P617, P618, P90	42.75	-1027.23	-1352.00	1352.00	49.50	2.32	57.68	12.35	0.24
P328, P329, P330, P616, P617, P618, P90	43	-1031.21	-1355.98	1355.98	53.49	2.51	57.49	12.35	0.25
P328, P329, P330, P616, P617, P618, P90	43.25	-1035.20	-1359.96	1359.96	57.47	2.69	57.31	12.35	0.25

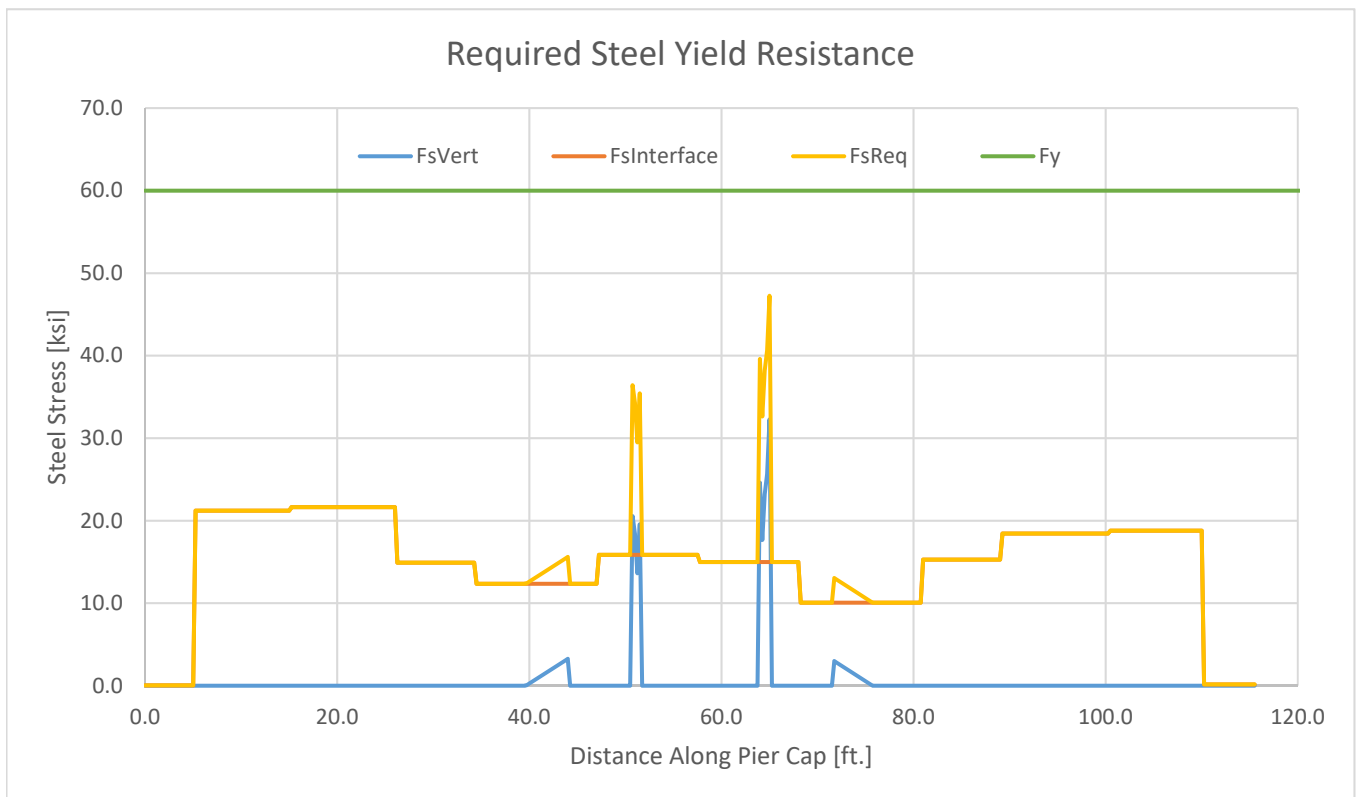
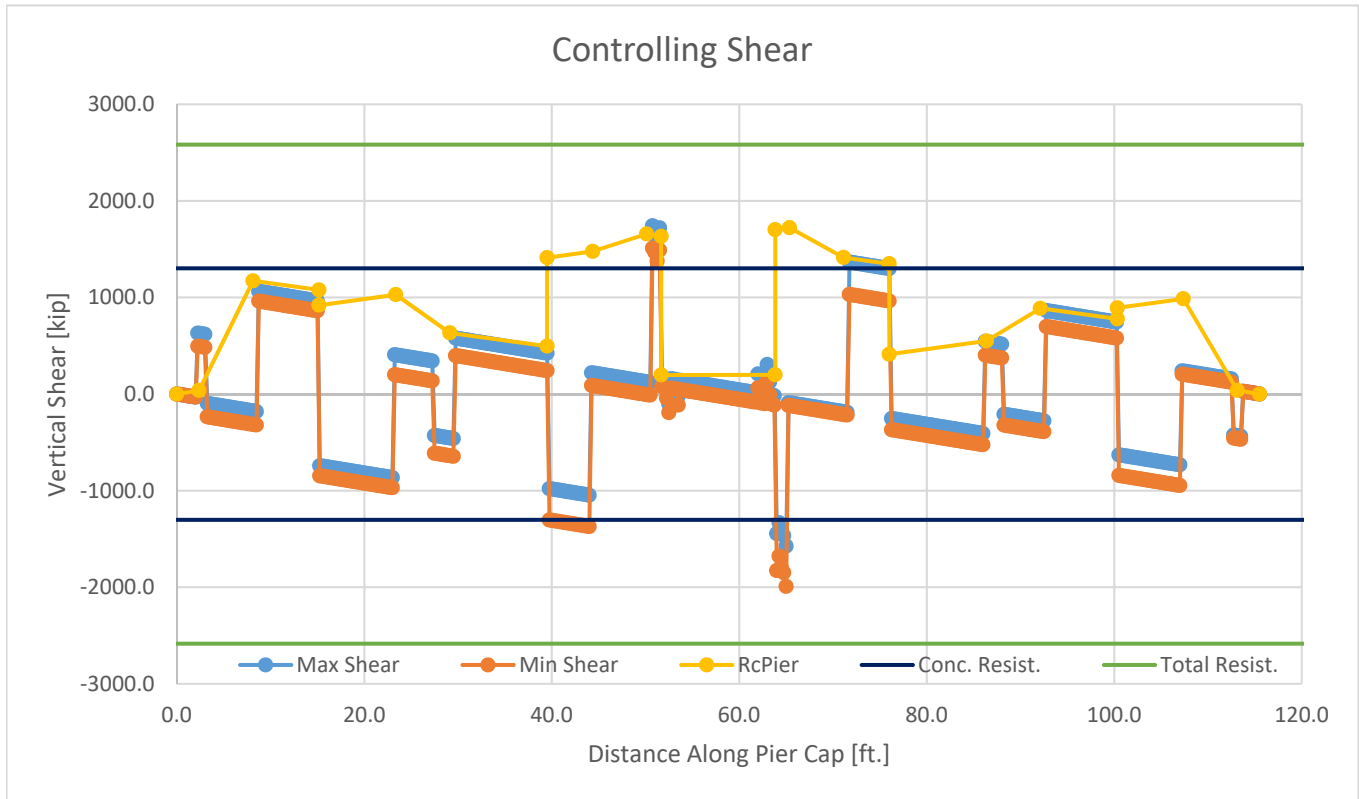
P328, P329, P330, P616, P617, P618, P90	43.5	-1039.18	-1363.95	1363.95	61.46	2.88	57.12	12.35	0.25
P328, P329, P330, P616, P617, P618, P90	43.75	-1043.17	-1367.93	1367.93	65.44	3.07	56.93	12.35	0.26
P328, P329, P330, P616, P617, P618, P90	44	-1047.15	-1371.92	1371.92	69.43	3.25	56.75	12.35	0.26
P15, P51, P87, P123, P159, P195, P331, P	44.25	219.92	88.04	219.92	0.00	0.00	60.00	12.35	0.21
P15, P51, P87, P123, P159, P195, P331, P	44.5	215.93	84.05	215.93	0.00	0.00	60.00	12.35	0.21
P15, P51, P87, P123, P159, P195, P331, P	44.75	211.95	80.07	211.95	0.00	0.00	60.00	12.35	0.21
P15, P51, P87, P123, P159, P195, P331, P	45	207.96	76.09	207.96	0.00	0.00	60.00	12.35	0.21
P333, P334, P335, P621, P622, P623, P90	45.25	203.98	72.10	203.98	0.00	0.00	60.00	12.35	0.21
P333, P334, P335, P621, P622, P623, P90	45.5	199.99	68.12	199.99	0.00	0.00	60.00	12.35	0.21
P333, P334, P335, P621, P622, P623, P90	45.75	196.01	64.13	196.01	0.00	0.00	60.00	12.35	0.21
P333, P334, P335, P621, P622, P623, P90	46	192.02	60.15	192.02	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	46.25	188.04	56.16	188.04	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	46.5	184.05	52.18	184.05	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	46.75	180.07	48.19	180.07	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	47	176.09	44.21	176.09	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	47.25	172.10	40.22	172.10	0.00	0.00	60.00	15.86	0.26
P16, P52, P88, P124, P160, P196, P339, P	47.5	168.12	36.24	168.12	0.00	0.00	60.00	15.86	0.26
P16, P52, P88, P124, P160, P196, P339, P	47.75	164.13	32.25	164.13	0.00	0.00	60.00	15.86	0.26
P16, P52, P88, P124, P160, P196, P339, P	48	160.15	28.27	160.15	0.00	0.00	60.00	15.86	0.26
P16, P52, P88, P124, P160, P196, P339, P	48.25	156.16	24.29	156.16	0.00	0.00	60.00	15.86	0.26
P341, P342, P343, P629, P630, P631, P91	48.5	152.18	20.30	152.18	0.00	0.00	60.00	15.86	0.26
P341, P342, P343, P629, P630, P631, P91	48.75	148.19	16.32	148.19	0.00	0.00	60.00	15.86	0.26
P341, P342, P343, P629, P630, P631, P91	49	144.21	12.33	144.21	0.00	0.00	60.00	15.86	0.26
P341, P342, P343, P629, P630, P631, P91	49.25	140.22	8.35	140.22	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	49.5	136.24	4.36	136.24	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	49.75	132.25	0.38	132.25	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	50	128.27	-3.61	128.27	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	50.25	124.29	-7.59	124.29	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	50.5	120.30	-11.58	120.30	0.00	0.00	60.00	15.86	0.26
P17, P53, P89, P125, P161, P197, P347, P	50.75	1741.47	1509.68	1741.47	438.98	20.56	39.44	15.86	0.61
P17, P53, P89, P125, P161, P197, P347, P	51	1695.52	1468.41	1695.52	393.03	18.41	41.59	15.86	0.57
P17, P53, P89, P125, P161, P197, P347, P	51.25	1593.49	1375.70	1593.49	291.00	13.63	46.37	15.86	0.49
P17, P53, P89, P125, P161, P197, P347, P	51.5	1720.10	1489.76	1720.10	417.60	19.56	40.44	15.86	0.59
P17, P53, P89, P125, P161, P197, P347, P	51.75	173.93	76.29	173.93	0.00	0.00	60.00	15.86	0.26
P197, P349, P350, P351, P637, P638, P63	52	164.97	67.31	164.97	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	52.25	50.65	-43.39	50.65	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	52.5	-104.06	-193.29	193.29	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	52.75	157.87	60.24	157.87	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	53	153.85	56.22	153.85	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	53.25	149.84	52.21	149.84	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	53.5	-22.97	-115.34	115.34	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	53.75	141.81	44.18	141.81	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	54	137.79	40.16	137.79	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	54.25	133.78	36.15	133.78	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	54.5	129.77	32.14	129.77	0.00	0.00	60.00	15.86	0.26
P18, P54, P90, P126, P162, P198, P355, P	54.75	125.76	28.13	125.76	0.00	0.00	60.00	15.86	0.26
P18, P54, P90, P126, P162, P198, P355, P	55	121.77	24.14	121.77	0.00	0.00	60.00	15.86	0.26
P18, P54, P90, P126, P162, P198, P355, P	55.25	117.79	20.16	117.79	0.00	0.00	60.00	15.86	0.26
P18, P54, P90, P126, P162, P198, P355, P	55.5	113.80	16.17	113.80	0.00	0.00	60.00	15.86	0.26
P357, P358, P359, P645, P646, P647, P93	55.75	109.82	12.19	109.82	0.00	0.00	60.00	15.86	0.26
P357, P358, P359, P645, P646, P647, P93	56	105.83	8.20	105.83	0.00	0.00	60.00	15.86	0.26
P357, P358, P359, P645, P646, P647, P93	56.25	101.85	4.22	101.85	0.00	0.00	60.00	15.86	0.26
P357, P358, P359, P645, P646, P647, P93	56.5	97.86	0.23	97.86	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	56.75	93.88	-3.75	93.88	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	57	89.89	-7.74	89.89	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	57.25	85.91	-11.72	85.91	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	57.5	81.93	-15.70	81.93	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	57.75	77.94	-19.69	77.94	0.00	0.00	60.00	14.98	0.25
P19, P55, P91, P127, P163, P199, P363, P	58	73.96	-23.67	73.96	0.00	0.00	60.00	14.98	0.25

P19, P55, P91, P127, P163, P199, P363, P	58.25	69.97	-27.66	69.97	0.00	0.00	60.00	14.98	0.25
P19, P55, P91, P127, P163, P199, P363, P	58.5	65.99	-31.64	65.99	0.00	0.00	60.00	14.98	0.25
P19, P55, P91, P127, P163, P199, P363, P	58.75	62.00	-35.63	62.00	0.00	0.00	60.00	14.98	0.25
P365, P366, P367, P653, P654, P655, P94	59	58.02	-39.61	58.02	0.00	0.00	60.00	14.98	0.25
P365, P366, P367, P653, P654, P655, P94	59.25	54.03	-43.60	54.03	0.00	0.00	60.00	14.98	0.25
P365, P366, P367, P653, P654, P655, P94	59.5	50.05	-47.58	50.05	0.00	0.00	60.00	14.98	0.25
P365, P366, P367, P653, P654, P655, P94	59.75	46.06	-51.57	51.57	0.00	0.00	60.00	14.98	0.25
P368, P369, P370, P656, P657, P658, P94	60	42.08	-55.55	55.55	0.00	0.00	60.00	14.98	0.25
P368, P369, P370, P656, P657, P658, P94	60.25	38.10	-59.54	59.54	0.00	0.00	60.00	14.98	0.25
P368, P369, P370, P656, P657, P658, P94	60.5	34.11	-63.52	63.52	0.00	0.00	60.00	14.98	0.25
P368, P369, P370, P656, P657, P658, P94	60.75	30.13	-67.50	67.50	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	61	26.12	-71.51	71.51	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	61.25	22.10	-75.53	75.53	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	61.5	18.09	-79.54	79.54	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	61.75	14.07	-83.56	83.56	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	62	207.93	63.35	207.93	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	62.25	6.04	-91.59	91.59	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	62.5	2.03	-95.60	95.60	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	62.75	-1.99	-99.62	99.62	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	63	305.70	133.97	305.70	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	63.25	125.11	-4.61	125.11	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	63.5	-7.92	-107.05	107.05	0.00	0.00	60.00	14.98	0.25
P376, P377, P378, P664, P665, P666, P95	63.75	-18.04	-115.67	115.67	0.00	0.00	60.00	14.98	0.25
P376, P377, P378, P664, P665, P666, P95	64	-1445.40	-1827.95	1827.95	525.46	24.61	35.39	14.98	0.66
P376, P377, P378, P664, P665, P666, P95	64.25	-1332.80	-1679.45	1679.45	376.96	17.66	42.34	14.98	0.54
P376, P377, P378, P664, P665, P666, P95	64.5	-1424.42	-1798.09	1798.09	495.60	23.21	36.79	14.98	0.64
P376, P377, P378, P664, P665, P666, P95	64.75	-1465.14	-1849.97	1849.97	547.48	25.64	34.36	14.98	0.68
P376, P377, P378, P664, P665, P666, P95	65	-1574.44	-1991.40	1991.40	688.91	32.27	27.73	14.98	0.79
P21, P57, P93, P129, P165, P201, P379, P	65.25	-89.47	-118.38	118.38	0.00	0.00	60.00	14.98	0.25
P21, P57, P93, P129, P165, P201, P379, P	65.5	-93.46	-122.37	122.37	0.00	0.00	60.00	14.98	0.25
P21, P57, P93, P129, P165, P201, P379, P	65.75	-97.44	-126.35	126.35	0.00	0.00	60.00	14.98	0.25
P21, P57, P93, P129, P165, P201, P379, P	66	-101.43	-130.34	130.34	0.00	0.00	60.00	14.98	0.25
P381, P382, P383, P669, P670, P671, P95	66.25	-105.41	-134.32	134.32	0.00	0.00	60.00	14.98	0.25
P381, P382, P383, P669, P670, P671, P95	66.5	-109.40	-138.31	138.31	0.00	0.00	60.00	14.98	0.25
P381, P382, P383, P669, P670, P671, P95	66.75	-113.38	-142.29	142.29	0.00	0.00	60.00	14.98	0.25
P381, P382, P383, P669, P670, P671, P95	67	-117.37	-146.28	146.28	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	67.25	-121.35	-150.26	150.26	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	67.5	-125.34	-154.25	154.25	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	67.75	-129.32	-158.23	158.23	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	68	-133.30	-162.21	162.21	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	68.25	-137.29	-166.20	166.20	0.00	0.00	60.00	10.07	0.17
P22, P58, P94, P130, P166, P202, P387, P	68.5	-141.27	-170.18	170.18	0.00	0.00	60.00	10.07	0.17
P22, P58, P94, P130, P166, P202, P387, P	68.75	-145.26	-174.17	174.17	0.00	0.00	60.00	10.07	0.17
P22, P58, P94, P130, P166, P202, P387, P	69	-149.24	-178.15	178.15	0.00	0.00	60.00	10.07	0.17
P22, P58, P94, P130, P166, P202, P387, P	69.25	-153.23	-182.14	182.14	0.00	0.00	60.00	10.07	0.17
P389, P390, P391, P677, P678, P679, P96	69.5	-157.21	-186.12	186.12	0.00	0.00	60.00	10.07	0.17
P389, P390, P391, P677, P678, P679, P96	69.75	-161.20	-190.11	190.11	0.00	0.00	60.00	10.07	0.17
P389, P390, P391, P677, P678, P679, P96	70	-165.18	-194.09	194.09	0.00	0.00	60.00	10.07	0.17
P389, P390, P391, P677, P678, P679, P96	70.25	-169.17	-198.08	198.08	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	70.5	-173.15	-202.06	202.06	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	70.75	-177.14	-206.05	206.05	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	71	-181.12	-210.03	210.03	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	71.25	-185.10	-214.01	214.01	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	71.5	-189.09	-218.00	218.00	0.00	0.00	60.00	10.07	0.17
P23, P59, P95, P131, P167, P203, P395, P	71.75	1366.05	1031.08	1366.05	63.56	2.98	57.02	10.07	0.22
P23, P59, P95, P131, P167, P203, P395, P	72	1362.07	1027.10	1362.07	59.57	2.79	57.21	10.07	0.21
P23, P59, P95, P131, P167, P203, P395, P	72.25	1358.08	1023.11	1358.08	55.59	2.60	57.40	10.07	0.21
P23, P59, P95, P131, P167, P203, P395, P	72.5	1354.10	1019.13	1354.10	51.60	2.42	57.58	10.07	0.21
P23, P59, P95, P131, P167, P203, P395, P	72.75	1350.11	1015.14	1350.11	47.62	2.23	57.77	10.07	0.20

P23, P59, P95, P131, P167, P203, P395, P	73	1346.13	1011.16	1346.13	43.64	2.04	57.96	10.07	0.20
P397, P398, P399, P685, P686, P687, P97	73.25	1342.14	1007.17	1342.14	39.65	1.86	58.14	10.07	0.20
P397, P398, P399, P685, P686, P687, P97	73.5	1338.16	1003.19	1338.16	35.67	1.67	58.33	10.07	0.20
P397, P398, P399, P685, P686, P687, P97	73.75	1334.17	999.20	1334.17	31.68	1.48	58.52	10.07	0.19
P397, P398, P399, P685, P686, P687, P97	74	1330.19	995.22	1330.19	27.70	1.30	58.70	10.07	0.19
P397, P398, P399, P685, P686, P687, P97	74.25	1326.20	991.24	1326.20	23.71	1.11	58.89	10.07	0.19
P397, P398, P399, P685, P686, P687, P97	74.5	1322.22	987.25	1322.22	19.73	0.92	59.08	10.07	0.18
P400, P401, P402, P688, P689, P690, P97	74.75	1318.24	983.27	1318.24	15.74	0.74	59.26	10.07	0.18
P400, P401, P402, P688, P689, P690, P97	75	1314.25	979.28	1314.25	11.76	0.55	59.45	10.07	0.18
P400, P401, P402, P688, P689, P690, P97	75.25	1310.27	975.30	1310.27	7.77	0.36	59.64	10.07	0.17
P400, P401, P402, P688, P689, P690, P97	75.5	1306.28	971.31	1306.28	3.79	0.18	59.82	10.07	0.17
P400, P401, P402, P688, P689, P690, P97	75.75	1302.30	967.33	1302.30	0.00	0.00	60.00	10.07	0.17
P400, P401, P402, P688, P689, P690, P97	76	1298.31	963.34	1298.31	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	76.25	-253.38	-369.55	369.55	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	76.5	-257.36	-373.53	373.53	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	76.75	-261.35	-377.52	377.52	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	77	-265.33	-381.50	381.50	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	77.25	-269.32	-385.49	385.49	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	77.5	-273.30	-389.47	389.47	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	77.75	-277.29	-393.45	393.45	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	78	-281.27	-397.44	397.44	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	78.25	-285.26	-401.42	401.42	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	78.5	-289.24	-405.41	405.41	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	78.75	-293.22	-409.39	409.39	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	79	-297.21	-413.38	413.38	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	79.25	-301.19	-417.36	417.36	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	79.5	-305.18	-421.35	421.35	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	79.75	-309.16	-425.33	425.33	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	80	-313.15	-429.32	429.32	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	80.25	-317.13	-433.30	433.30	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	80.5	-321.12	-437.29	437.29	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	80.75	-325.10	-441.27	441.27	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	81	-329.09	-445.25	445.25	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	81.25	-333.07	-449.24	449.24	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	81.5	-337.06	-453.22	453.22	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	81.75	-341.04	-457.21	457.21	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	82	-345.02	-461.19	461.19	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	82.25	-349.01	-465.18	465.18	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	82.5	-352.99	-469.16	469.16	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	82.75	-356.98	-473.15	473.15	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	83	-360.96	-477.13	477.13	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	83.25	-364.95	-481.12	481.12	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	83.5	-368.93	-485.10	485.10	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	83.75	-372.92	-489.08	489.08	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	84	-376.90	-493.07	493.07	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	84.25	-380.89	-497.05	497.05	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	84.5	-384.87	-501.04	501.04	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	84.75	-388.85	-505.02	505.02	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	85	-392.84	-509.01	509.01	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	85.25	-396.82	-512.99	512.99	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	85.5	-400.81	-516.98	516.98	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	85.75	-404.79	-520.96	520.96	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	86	-408.78	-524.95	524.95	0.00	0.00	60.00	15.27	0.25
P26, P62, P98, P134, P170, P206, P419, P	86.25	544.72	401.22	544.72	0.00	0.00	60.00	15.27	0.25
P26, P62, P98, P134, P170, P206, P419, P	86.5	540.73	397.23	540.73	0.00	0.00	60.00	15.27	0.25
P421, P422, P423, P709, P710, P711, P99	86.75	536.75	393.25	536.75	0.00	0.00	60.00	15.27	0.25
P421, P422, P423, P709, P710, P711, P99	87	532.77	389.26	532.77	0.00	0.00	60.00	15.27	0.25
P421, P422, P423, P709, P710, P711, P99	87.25	528.78	385.28	528.78	0.00	0.00	60.00	15.27	0.25
P424, P425, P426, P712, P713, P714, P10	87.5	524.80	381.30	524.80	0.00	0.00	60.00	15.27	0.25

P424, P425, P426, P712, P713, P714, P10	87.75	520.81	377.31	520.81	0.00	0.00	60.00	15.27	0.25
P424, P425, P426, P712, P713, P714, P10	88	516.83	373.33	516.83	0.00	0.00	60.00	15.27	0.25
P27, P63, P99, P135, P171, P207, P427, P	88.25	-210.16	-322.48	322.48	0.00	0.00	60.00	15.27	0.25
P27, P63, P99, P135, P171, P207, P427, P	88.5	-214.15	-326.46	326.46	0.00	0.00	60.00	15.27	0.25
P429, P430, P431, P717, P718, P719, P10	88.75	-218.13	-330.45	330.45	0.00	0.00	60.00	15.27	0.25
P432, P433, P434, P720, P721, P722, P10	89	-222.12	-334.43	334.43	0.00	0.00	60.00	15.27	0.25
P432, P433, P434, P720, P721, P722, P10	89.25	-226.10	-338.42	338.42	0.00	0.00	60.00	18.44	0.31
P28, P64, P100, P136, P172, P208, P435,	89.5	-230.09	-342.40	342.40	0.00	0.00	60.00	18.44	0.31
P28, P64, P100, P136, P172, P208, P435,	89.75	-234.07	-346.38	346.38	0.00	0.00	60.00	18.44	0.31
P28, P64, P100, P136, P172, P208, P435,	90	-238.05	-350.37	350.37	0.00	0.00	60.00	18.44	0.31
P28, P64, P100, P136, P172, P208, P435,	90.25	-242.04	-354.35	354.35	0.00	0.00	60.00	18.44	0.31
P437, P438, P439, P725, P726, P727, P10	90.5	-246.02	-358.34	358.34	0.00	0.00	60.00	18.44	0.31
P437, P438, P439, P725, P726, P727, P10	90.75	-250.01	-362.32	362.32	0.00	0.00	60.00	18.44	0.31
P437, P438, P439, P725, P726, P727, P10	91	-253.99	-366.31	366.31	0.00	0.00	60.00	18.44	0.31
P437, P438, P439, P725, P726, P727, P10	91.25	-257.98	-370.29	370.29	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	91.5	-261.96	-374.28	374.28	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	91.75	-265.95	-378.26	378.26	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	92	-269.93	-382.25	382.25	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	92.25	-273.92	-386.23	386.23	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	92.5	-277.90	-390.21	390.21	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	92.75	863.64	698.95	863.64	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	93	859.65	694.97	859.65	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	93.25	855.67	690.98	855.67	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	93.5	851.68	687.00	851.68	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	93.75	847.70	683.01	847.70	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	94	843.71	679.03	843.71	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	94.25	839.73	675.04	839.73	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	94.5	835.75	671.06	835.75	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	94.75	831.76	667.07	831.76	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	95	827.78	663.09	827.78	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	95.25	823.79	659.10	823.79	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	95.5	819.81	655.12	819.81	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	95.75	815.82	651.13	815.82	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	96	811.84	647.15	811.84	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	96.25	807.85	643.17	807.85	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	96.5	803.87	639.18	803.87	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	96.75	799.88	635.20	799.88	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	97	795.90	631.21	795.90	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	97.25	791.92	627.23	791.92	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	97.5	787.93	623.24	787.93	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	97.75	783.95	619.26	783.95	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	98	779.96	615.27	779.96	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	98.25	775.98	611.29	775.98	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	98.5	771.99	607.30	771.99	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	98.75	768.01	603.32	768.01	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	99	764.02	599.34	764.02	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	99.25	760.04	595.35	760.04	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	99.5	756.05	591.37	756.05	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	99.75	752.07	587.38	752.07	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	100	748.08	583.40	748.08	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	100.25	744.10	579.41	744.10	0.00	0.00	60.00	18.44	0.31
P31, P67, P103, P139, P175, P211, P459,	100.5	-629.79	-843.01	843.01	0.00	0.00	60.00	18.80	0.31
P31, P67, P103, P139, P175, P211, P459,	100.75	-633.78	-846.99	846.99	0.00	0.00	60.00	18.80	0.31
P31, P67, P103, P139, P175, P211, P459,	101	-637.76	-850.98	850.98	0.00	0.00	60.00	18.80	0.31
P31, P67, P103, P139, P175, P211, P459,	101.25	-641.75	-854.96	854.96	0.00	0.00	60.00	18.80	0.31
P461, P462, P463, P749, P750, P751, P10	101.5	-645.73	-858.95	858.95	0.00	0.00	60.00	18.80	0.31
P461, P462, P463, P749, P750, P751, P10	101.75	-649.72	-862.93	862.93	0.00	0.00	60.00	18.80	0.31
P461, P462, P463, P749, P750, P751, P10	102	-653.70	-866.92	866.92	0.00	0.00	60.00	18.80	0.31
P461, P462, P463, P749, P750, P751, P10	102.25	-657.69	-870.90	870.90	0.00	0.00	60.00	18.80	0.31

P461, P462, P463, P749, P750, P751, P10	102.5	-661.67	-874.89	874.89	0.00	0.00	60.00	18.80	0.31
P464, P465, P466, P752, P753, P754, P10	102.75	-665.66	-878.87	878.87	0.00	0.00	60.00	18.80	0.31
P464, P465, P466, P752, P753, P754, P10	103	-669.64	-882.86	882.86	0.00	0.00	60.00	18.80	0.31
P464, P465, P466, P752, P753, P754, P10	103.25	-673.62	-886.84	886.84	0.00	0.00	60.00	18.80	0.31
P464, P465, P466, P752, P753, P754, P10	103.5	-677.61	-890.82	890.82	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	103.75	-681.59	-894.81	894.81	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	104	-685.58	-898.79	898.79	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	104.25	-689.56	-902.78	902.78	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	104.5	-693.55	-906.76	906.76	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	104.75	-697.53	-910.75	910.75	0.00	0.00	60.00	18.80	0.31
P469, P470, P471, P757, P758, P759, P10	105	-701.52	-914.73	914.73	0.00	0.00	60.00	18.80	0.31
P469, P470, P471, P757, P758, P759, P10	105.25	-705.50	-918.72	918.72	0.00	0.00	60.00	18.80	0.31
P469, P470, P471, P757, P758, P759, P10	105.5	-709.49	-922.70	922.70	0.00	0.00	60.00	18.80	0.31
P469, P470, P471, P757, P758, P759, P10	105.75	-713.47	-926.69	926.69	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	106	-717.46	-930.67	930.67	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	106.25	-721.44	-934.65	934.65	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	106.5	-725.42	-938.64	938.64	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	106.75	-729.41	-942.62	942.62	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	107	-733.39	-946.61	946.61	0.00	0.00	60.00	18.80	0.31
P33, P69, P105, P141, P177, P213, P475,	107.25	240.24	205.47	240.24	0.00	0.00	60.00	18.80	0.31
P33, P69, P105, P141, P177, P213, P475,	107.5	236.26	201.49	236.26	0.00	0.00	60.00	18.80	0.31
P33, P69, P105, P141, P177, P213, P475,	107.75	232.27	197.50	232.27	0.00	0.00	60.00	18.80	0.31
P33, P69, P105, P141, P177, P213, P475,	108	228.29	193.52	228.29	0.00	0.00	60.00	18.80	0.31
P477, P478, P479, P765, P766, P767, P10	108.25	224.30	189.53	224.30	0.00	0.00	60.00	18.80	0.31
P477, P478, P479, P765, P766, P767, P10	108.5	220.32	185.55	220.32	0.00	0.00	60.00	18.80	0.31
P477, P478, P479, P765, P766, P767, P10	108.75	216.33	181.56	216.33	0.00	0.00	60.00	18.80	0.31
P477, P478, P479, P765, P766, P767, P10	109	212.35	177.58	212.35	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	109.25	208.36	173.60	208.36	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	109.5	204.38	169.61	204.38	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	109.75	200.40	165.63	200.40	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	110	196.41	161.64	196.41	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	110.25	192.43	157.66	192.43	0.00	0.00	60.00	0.16	0.00
P34, P70, P106, P142, P178, P214, P483,	110.5	188.44	153.67	188.44	0.00	0.00	60.00	0.16	0.00
P34, P70, P106, P142, P178, P214, P483,	110.75	184.46	149.69	184.46	0.00	0.00	60.00	0.16	0.00
P34, P70, P106, P142, P178, P214, P483,	111	180.47	145.70	180.47	0.00	0.00	60.00	0.16	0.00
P485, P486, P487, P773, P774, P775, P10	111.25	176.49	141.72	176.49	0.00	0.00	60.00	0.16	0.00
P485, P486, P487, P773, P774, P775, P10	111.5	172.50	137.73	172.50	0.00	0.00	60.00	0.16	0.00
P485, P486, P487, P773, P774, P775, P10	111.75	168.52	133.75	168.52	0.00	0.00	60.00	0.16	0.00
P488, P489, P490, P776, P777, P778, P10	112	164.53	129.76	164.53	0.00	0.00	60.00	0.16	0.00
P488, P489, P490, P776, P777, P778, P10	112.25	160.55	125.78	160.55	0.00	0.00	60.00	0.16	0.00
P488, P489, P490, P776, P777, P778, P10	112.5	156.57	121.80	156.57	0.00	0.00	60.00	0.16	0.00
P35, P71, P107, P143, P179, P215, P491,	112.75	-424.87	-456.95	456.95	0.00	0.00	60.00	0.16	0.00
P493, P494, P495, P781, P782, P783, P10	113	-428.85	-460.93	460.93	0.00	0.00	60.00	0.16	0.00
P496, P497, P498, P784, P785, P786, P10	113.25	-432.84	-464.92	464.92	0.00	0.00	60.00	0.16	0.00
P496, P497, P498, P784, P785, P786, P10	113.5	-436.82	-468.90	468.90	0.00	0.00	60.00	0.16	0.00
P36, P72, P108, P144, P180, P216, P499,	113.75	27.89	27.89	27.89	0.00	0.00	60.00	0.16	0.00
P36, P72, P108, P144, P180, P216, P499,	114	23.91	23.91	23.91	0.00	0.00	60.00	0.16	0.00
P501, P502, P503, P789, P790, P791, P10	114.25	19.92	19.92	19.92	0.00	0.00	60.00	0.16	0.00
P501, P502, P503, P789, P790, P791, P10	114.5	15.94	15.94	15.94	0.00	0.00	60.00	0.16	0.00
P501, P502, P503, P789, P790, P791, P10	114.75	11.95	11.95	11.95	0.00	0.00	60.00	0.16	0.00
P504, P505, P506, P792, P793, P794, P10	115	7.97	7.97	7.97	0.00	0.00	60.00	0.16	0.00
P504, P505, P506, P792, P793, P794, P10	115.25	3.98	3.98	3.98	0.00	0.00	60.00	0.16	0.00
P504, P505, P506, P792, P793, P794, P10	115.5	0.00	0.00	0.00	0.00	0.00	60.00	0.16	0.00
Strength I								Max	0.79



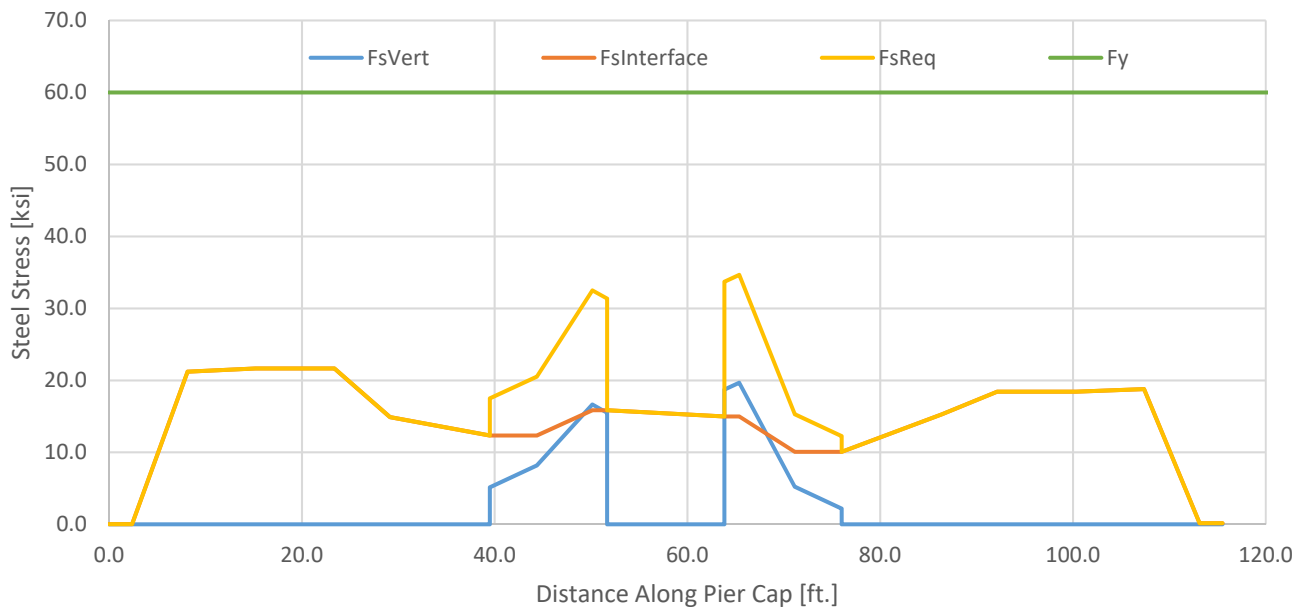
For completeness, check required shear reinforcement based on design pier cap loads.

RcPier Results

(Plotted above)

Loc. [ft.]	VuStr[kip]	VsReq	Fsv	FyAvail.	FsInter	FsTot.	DC
0	0	0.00	0.00	60.0	0.04	0.04	0.00
2.37	37.9	0.00	0.00	60.0	0.04	0.04	0.00
8.13	1172.3	0.00	0.00	60.0	21.20	21.20	0.35
15.17	1078.3	0.00	0.00	60.0	21.65	21.65	0.36
15.17	919.8	0.00	0.00	60.0	21.65	21.65	0.36
23.37	1029.1	0.00	0.00	60.0	21.65	21.65	0.36
29.13	633.7	0.00	0.00	60.0	14.90	14.90	0.25
39.5	495.5	0.00	0.00	60.0	12.35	12.35	0.21
39.5	1412.3	109.81	5.14	54.9	12.35	17.49	0.29
44.37	1477.2	174.71	8.18	51.8	12.35	20.53	0.34
50.13	1657.9	355.41	16.65	43.4	15.86	32.51	0.54
51.67	1633.4	330.91	15.50	44.5	15.86	31.36	0.52
51.67	197.9	0.00	0.00	60.0	15.86	15.86	0.26
63.83	199.2	0.00	0.00	60.0	14.98	14.98	0.25
63.83	1702.2	399.71	18.72	41.3	14.98	33.71	0.56
65.37	1722.6	420.11	19.68	40.3	14.98	34.66	0.58
71.13	1414	111.51	5.22	54.8	10.07	15.29	0.25
76	1349.1	46.61	2.18	57.8	10.07	12.25	0.20
76	411.9	0.00	0.00	60.0	10.07	10.07	0.17
86.37	550	0.00	0.00	60.0	15.27	15.27	0.25
92.13	887.7	0.00	0.00	60.0	18.44	18.44	0.31
100.33	778.5	0.00	0.00	60.0	18.44	18.44	0.31
100.33	892.6	0.00	0.00	60.0	18.44	18.44	0.31
107.37	986.4	0.00	0.00	60.0	18.80	18.80	0.31
113.13	37.9	0.00	0.00	60.0	0.16	0.16	0.00
115.5	0	0.00	0.00	60.0	0.16	0.16	0.00
Strength I						Max	0.58

RcPier - Required Steel Yield Resistance



Based on design loads provided, sufficient vertical reinforcement is provided for the full length of cap for the conservatively combined interface and vertical shear required reinforcement.

Extreme Event I

Elements	X [ft.]		E.E.	VsReq	Fsv	FyAvail.	FsInter	DC
P1, P37, P73, P109, P145, P181, P219, P2	0		0.00	0.00	0.00	60.00	0.04	0.00
P1, P37, P73, P109, P145, P181, P219, P2	0.25		-3.19	0.00	0.00	60.00	0.04	0.00
P1, P37, P73, P109, P145, P181, P219, P2	0.5		-6.38	0.00	0.00	60.00	0.04	0.00
P221, P222, P223, P509, P510, P511, P79	0.75		-9.56	0.00	0.00	60.00	0.04	0.00
P221, P222, P223, P509, P510, P511, P79	1		-12.75	0.00	0.00	60.00	0.04	0.00
P221, P222, P223, P509, P510, P511, P79	1.25		-15.94	0.00	0.00	60.00	0.04	0.00
P224, P225, P226, P512, P513, P514, P80	1.5		-19.13	0.00	0.00	60.00	0.04	0.00
P224, P225, P226, P512, P513, P514, P80	1.75		-22.31	0.00	0.00	60.00	0.04	0.00
P224, P225, P226, P512, P513, P514, P80	2		-25.50	0.00	0.00	60.00	0.04	0.00
P2, P38, P74, P110, P146, P182, P227, P2	2.25		667.39	0.00	0.00	60.00	0.04	0.00
P229, P230, P231, P517, P518, P519, P80	2.5		664.20	0.00	0.00	60.00	0.04	0.00
P232, P233, P234, P520, P521, P522, P80	2.75		661.01	0.00	0.00	60.00	0.04	0.00
P232, P233, P234, P520, P521, P522, P80	3		657.83	0.00	0.00	60.00	0.04	0.00
P3, P39, P75, P111, P147, P183, P235, P2	3.25		165.90	0.00	0.00	60.00	0.04	0.00
P3, P39, P75, P111, P147, P183, P235, P2	3.5		162.71	0.00	0.00	60.00	0.04	0.00
P3, P39, P75, P111, P147, P183, P235, P2	3.75		159.53	0.00	0.00	60.00	0.04	0.00
P237, P238, P239, P525, P526, P527, P81	4		156.34	0.00	0.00	60.00	0.04	0.00
P237, P238, P239, P525, P526, P527, P81	4.25		153.15	0.00	0.00	60.00	0.04	0.00
P237, P238, P239, P525, P526, P527, P81	4.5		149.96	0.00	0.00	60.00	0.04	0.00
P240, P241, P242, P528, P529, P530, P81	4.75		146.78	0.00	0.00	60.00	0.04	0.00
P240, P241, P242, P528, P529, P530, P81	5		143.59	0.00	0.00	60.00	0.04	0.00
P240, P241, P242, P528, P529, P530, P81	5.25		140.40	0.00	0.00	60.00	21.20	0.35
P4, P40, P76, P112, P148, P184, P243, P2	5.5		137.21	0.00	0.00	60.00	21.20	0.35
P4, P40, P76, P112, P148, P184, P243, P2	5.75		134.03	0.00	0.00	60.00	21.20	0.35
P4, P40, P76, P112, P148, P184, P243, P2	6		130.84	0.00	0.00	60.00	21.20	0.35
P4, P40, P76, P112, P148, P184, P243, P2	6.25		127.65	0.00	0.00	60.00	21.20	0.35
P245, P246, P247, P533, P534, P535, P82	6.5		124.46	0.00	0.00	60.00	21.20	0.35
P245, P246, P247, P533, P534, P535, P82	6.75		121.27	0.00	0.00	60.00	21.20	0.35
P245, P246, P247, P533, P534, P535, P82	7		118.09	0.00	0.00	60.00	21.20	0.35
P245, P246, P247, P533, P534, P535, P82	7.25		114.90	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	7.5		111.71	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	7.75		108.52	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	8		105.34	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	8.25		102.15	0.00	0.00	60.00	21.20	0.35
P248, P249, P250, P536, P537, P538, P82	8.5		98.96	0.00	0.00	60.00	21.20	0.35
P5, P41, P77, P113, P149, P185, P251, P2	8.75		189.59	0.00	0.00	60.00	21.20	0.35
P5, P41, P77, P113, P149, P185, P251, P2	9		186.40	0.00	0.00	60.00	21.20	0.35
P5, P41, P77, P113, P149, P185, P251, P2	9.25		183.21	0.00	0.00	60.00	21.20	0.35
P5, P41, P77, P113, P149, P185, P251, P2	9.5		180.02	0.00	0.00	60.00	21.20	0.35
P253, P254, P255, P541, P542, P543, P82	9.75		176.84	0.00	0.00	60.00	21.20	0.35
P253, P254, P255, P541, P542, P543, P82	10		173.65	0.00	0.00	60.00	21.20	0.35
P253, P254, P255, P541, P542, P543, P82	10.25		170.46	0.00	0.00	60.00	21.20	0.35
P253, P254, P255, P541, P542, P543, P82	10.5		167.27	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	10.75		164.09	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	11		160.90	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	11.25		157.71	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	11.5		154.52	0.00	0.00	60.00	21.20	0.35
P256, P257, P258, P544, P545, P546, P83	11.75		151.33	0.00	0.00	60.00	21.20	0.35
P6, P42, P78, P114, P150, P186, P259, P2	12		148.15	0.00	0.00	60.00	21.20	0.35
P6, P42, P78, P114, P150, P186, P259, P2	12.25		144.96	0.00	0.00	60.00	21.20	0.35
P6, P42, P78, P114, P150, P186, P259, P2	12.5		141.77	0.00	0.00	60.00	21.20	0.35
P6, P42, P78, P114, P150, P186, P259, P2	12.75		138.58	0.00	0.00	60.00	21.20	0.35
P261, P262, P263, P549, P550, P551, P83	13		135.40	0.00	0.00	60.00	21.20	0.35
P261, P262, P263, P549, P550, P551, P83	13.25		132.21	0.00	0.00	60.00	21.20	0.35
P261, P262, P263, P549, P550, P551, P83	13.5		129.02	0.00	0.00	60.00	21.20	0.35
P261, P262, P263, P549, P550, P551, P83	13.75		125.83	0.00	0.00	60.00	21.20	0.35

P261, P262, P263, P549, P550, P551, P83	14			122.65	0.00	0.00	60.00	21.20	0.35
P264, P265, P266, P552, P553, P554, P84	14.25			119.46	0.00	0.00	60.00	21.20	0.35
P264, P265, P266, P552, P553, P554, P84	14.5			116.27	0.00	0.00	60.00	21.20	0.35
P264, P265, P266, P552, P553, P554, P84	14.75			113.08	0.00	0.00	60.00	21.20	0.35
P264, P265, P266, P552, P553, P554, P84	15			109.90	0.00	0.00	60.00	21.20	0.35
P7, P43, P79, P115, P151, P187, P267, P2	15.25			-989.79	0.00	0.00	60.00	21.65	0.36
P7, P43, P79, P115, P151, P187, P267, P2	15.5			-992.98	0.00	0.00	60.00	21.65	0.36
P7, P43, P79, P115, P151, P187, P267, P2	15.75			-996.17	0.00	0.00	60.00	21.65	0.36
P7, P43, P79, P115, P151, P187, P267, P2	16			-999.36	0.00	0.00	60.00	21.65	0.36
P7, P43, P79, P115, P151, P187, P267, P2	16.25			-1002.54	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	16.5			-1005.73	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	16.75			-1008.92	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	17			-1012.11	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	17.25			-1015.29	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	17.5			-1018.48	0.00	0.00	60.00	21.65	0.36
P269, P270, P271, P557, P558, P559, P84	17.75			-1021.67	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	18			-1024.86	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	18.25			-1028.04	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	18.5			-1031.23	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	18.75			-1034.42	0.00	0.00	60.00	21.65	0.36
P272, P273, P274, P560, P561, P562, P84	19			-1037.61	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	19.25			-1040.79	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	19.5			-1043.98	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	19.75			-1047.17	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	20			-1050.36	0.00	0.00	60.00	21.65	0.36
P8, P44, P80, P116, P152, P188, P275, P2	20.25			-1053.55	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	20.5			-1056.73	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	20.75			-1059.92	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	21			-1063.11	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	21.25			-1066.30	0.00	0.00	60.00	21.65	0.36
P277, P278, P279, P565, P566, P567, P85	21.5			-1069.48	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	21.75			-1072.67	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	22			-1075.86	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	22.25			-1079.05	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	22.5			-1082.23	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	22.75			-1085.42	0.00	0.00	60.00	21.65	0.36
P280, P281, P282, P568, P569, P570, P85	23			-1088.61	0.00	0.00	60.00	21.65	0.36
P9, P45, P81, P117, P153, P189, P283, P2	23.25			521.98	0.00	0.00	60.00	21.65	0.36
P9, P45, P81, P117, P153, P189, P283, P2	23.5			518.79	0.00	0.00	60.00	21.65	0.36
P9, P45, P81, P117, P153, P189, P283, P2	23.75			515.61	0.00	0.00	60.00	21.65	0.36
P9, P45, P81, P117, P153, P189, P283, P2	24			512.42	0.00	0.00	60.00	21.65	0.36
P285, P286, P287, P573, P574, P575, P86	24.25			509.23	0.00	0.00	60.00	21.65	0.36
P285, P286, P287, P573, P574, P575, P86	24.5			506.04	0.00	0.00	60.00	21.65	0.36
P285, P286, P287, P573, P574, P575, P86	24.75			502.86	0.00	0.00	60.00	21.65	0.36
P285, P286, P287, P573, P574, P575, P86	25			499.67	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	25.25			496.48	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	25.5			493.29	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	25.75			490.11	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	26			486.92	0.00	0.00	60.00	21.65	0.36
P288, P289, P290, P576, P577, P578, P86	26.25			483.73	0.00	0.00	60.00	14.90	0.25
P10, P46, P82, P118, P154, P190, P291, P	26.5			480.54	0.00	0.00	60.00	14.90	0.25
P293, P294, P295, P581, P582, P583, P86	26.75			477.35	0.00	0.00	60.00	14.90	0.25
P296, P297, P298, P584, P585, P586, P87	27			474.17	0.00	0.00	60.00	14.90	0.25
P296, P297, P298, P584, P585, P586, P87	27.25			470.98	0.00	0.00	60.00	14.90	0.25
P11, P47, P83, P119, P155, P191, P299, P	27.5			-159.41	0.00	0.00	60.00	14.90	0.25
P11, P47, P83, P119, P155, P191, P299, P	27.75			-162.60	0.00	0.00	60.00	14.90	0.25
P11, P47, P83, P119, P155, P191, P299, P	28			-165.79	0.00	0.00	60.00	14.90	0.25
P301, P302, P303, P589, P590, P591, P87	28.25			-168.98	0.00	0.00	60.00	14.90	0.25
P301, P302, P303, P589, P590, P591, P87	28.5			-172.17	0.00	0.00	60.00	14.90	0.25

P301, P302, P303, P589, P590, P591, P87	28.75			-175.35	0.00	0.00	60.00	14.90	0.25
P304, P305, P306, P592, P593, P594, P88	29			-178.54	0.00	0.00	60.00	14.90	0.25
P304, P305, P306, P592, P593, P594, P88	29.25			-181.73	0.00	0.00	60.00	14.90	0.25
P304, P305, P306, P592, P593, P594, P88	29.5			-184.92	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	29.75			-19.98	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	30			-23.17	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	30.25			-26.36	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	30.5			-29.55	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	30.75			-32.73	0.00	0.00	60.00	14.90	0.25
P12, P48, P84, P120, P156, P192, P307, P	31			-35.92	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	31.25			-39.11	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	31.5			-42.30	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	31.75			-45.48	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	32			-48.67	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	32.25			-51.86	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	32.5			-55.05	0.00	0.00	60.00	14.90	0.25
P309, P310, P311, P597, P598, P599, P88	32.75			-58.24	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	33			-61.42	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	33.25			-64.61	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	33.5			-67.80	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	33.75			-70.99	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	34			-74.17	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	34.25			-77.36	0.00	0.00	60.00	14.90	0.25
P312, P313, P314, P600, P601, P602, P88	34.5			-80.55	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	34.75			-83.74	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	35			-86.92	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	35.25			-90.11	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	35.5			-93.30	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	35.75			-96.49	0.00	0.00	60.00	12.35	0.21
P13, P49, P85, P121, P157, P193, P315, P	36			-99.67	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	36.25			-102.86	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	36.5			-106.05	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	36.75			-109.24	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	37			-112.43	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	37.25			-115.61	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	37.5			-118.80	0.00	0.00	60.00	12.35	0.21
P317, P318, P319, P605, P606, P607, P89	37.75			-121.99	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	38			-125.18	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	38.25			-128.36	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	38.5			-131.55	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	38.75			-134.74	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	39			-137.93	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	39.25			-141.11	0.00	0.00	60.00	12.35	0.21
P320, P321, P322, P608, P609, P610, P89	39.5			-144.30	0.00	0.00	60.00	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	39.75			-1286.49	0.00	0.00	60.00	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	40			-1289.68	0.00	0.00	60.00	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	40.25			-1292.86	0.00	0.00	60.00	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	40.5			-1296.05	0.00	0.00	60.00	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	40.75			-1299.24	0.00	0.00	60.00	12.35	0.21
P14, P50, P86, P122, P158, P194, P323, P	41			-1302.43	0.00	0.00	60.00	12.35	0.21
P325, P326, P327, P613, P614, P615, P90	41.25			-1305.62	3.12	0.15	59.85	12.35	0.21
P325, P326, P327, P613, P614, P615, P90	41.5			-1308.80	6.31	0.30	59.70	12.35	0.21
P325, P326, P327, P613, P614, P615, P90	41.75			-1311.99	9.50	0.44	59.56	12.35	0.21
P325, P326, P327, P613, P614, P615, P90	42			-1315.18	12.69	0.59	59.41	12.35	0.22
P325, P326, P327, P613, P614, P615, P90	42.25			-1318.37	15.87	0.74	59.26	12.35	0.22
P325, P326, P327, P613, P614, P615, P90	42.5			-1321.55	19.06	0.89	59.11	12.35	0.22
P328, P329, P330, P616, P617, P618, P90	42.75			-1324.74	22.25	1.04	58.96	12.35	0.22
P328, P329, P330, P616, P617, P618, P90	43			-1327.93	25.44	1.19	58.81	12.35	0.23
P328, P329, P330, P616, P617, P618, P90	43.25			-1331.12	28.63	1.34	58.66	12.35	0.23

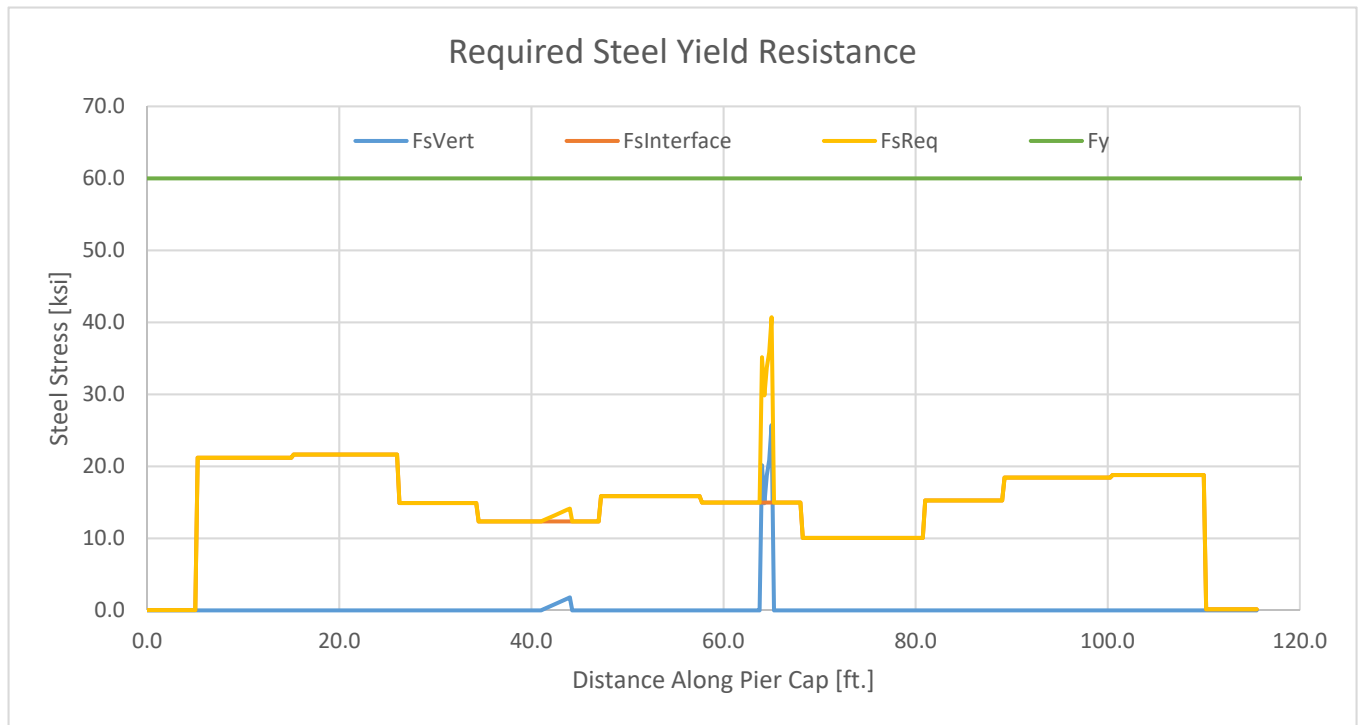
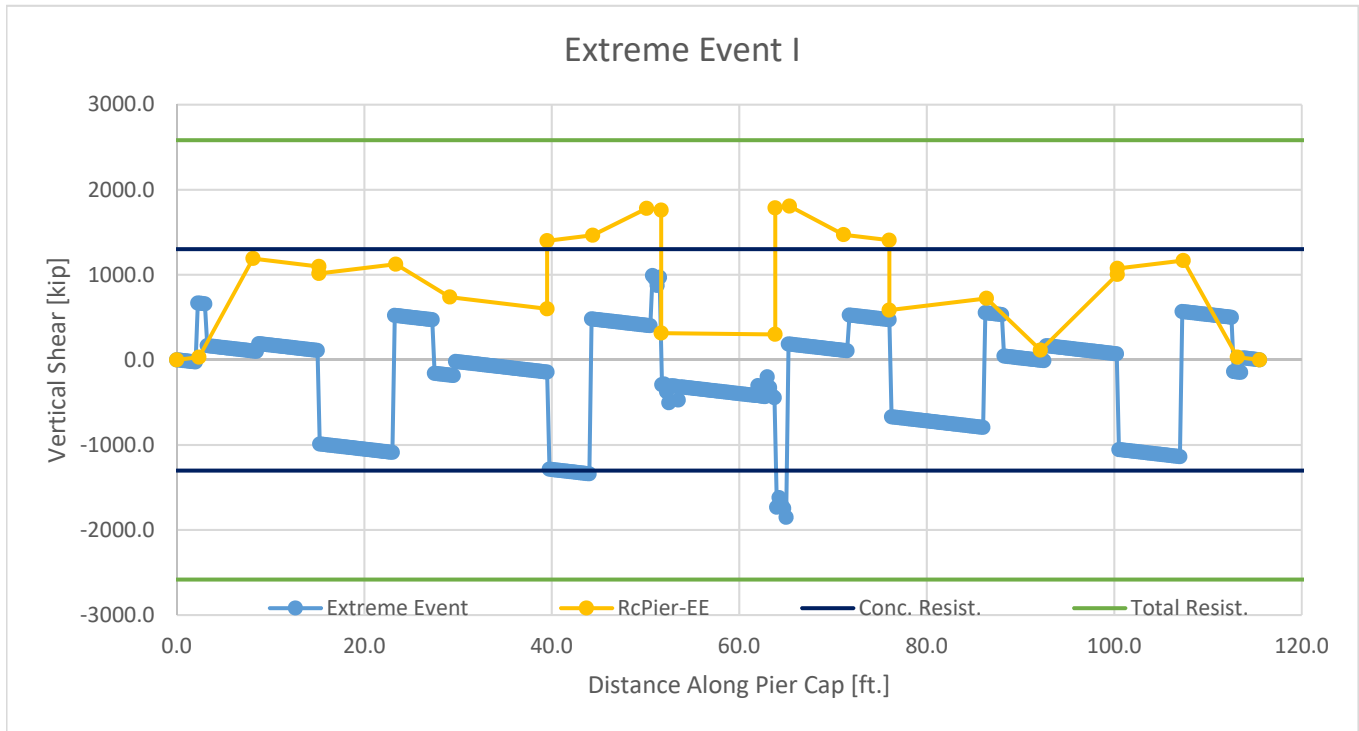
P328, P329, P330, P616, P617, P618, P90	43.5			-1334.30	31.81	1.49	58.51	12.35	0.23
P328, P329, P330, P616, P617, P618, P90	43.75			-1337.49	35.00	1.64	58.36	12.35	0.23
P328, P329, P330, P616, P617, P618, P90	44			-1340.68	38.19	1.79	58.21	12.35	0.24
P15, P51, P87, P123, P159, P195, P331, P	44.25			480.46	0.00	0.00	60.00	12.35	0.21
P15, P51, P87, P123, P159, P195, P331, P	44.5			477.28	0.00	0.00	60.00	12.35	0.21
P15, P51, P87, P123, P159, P195, P331, P	44.75			474.09	0.00	0.00	60.00	12.35	0.21
P15, P51, P87, P123, P159, P195, P331, P	45			470.90	0.00	0.00	60.00	12.35	0.21
P333, P334, P335, P621, P622, P623, P90	45.25			467.71	0.00	0.00	60.00	12.35	0.21
P333, P334, P335, P621, P622, P623, P90	45.5			464.53	0.00	0.00	60.00	12.35	0.21
P333, P334, P335, P621, P622, P623, P90	45.75			461.34	0.00	0.00	60.00	12.35	0.21
P333, P334, P335, P621, P622, P623, P90	46			458.15	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	46.25			454.96	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	46.5			451.77	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	46.75			448.59	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	47			445.40	0.00	0.00	60.00	12.35	0.21
P336, P337, P338, P624, P625, P626, P91	47.25			442.21	0.00	0.00	60.00	15.86	0.26
P16, P52, P88, P124, P160, P196, P339, P	47.5			439.02	0.00	0.00	60.00	15.86	0.26
P16, P52, P88, P124, P160, P196, P339, P	47.75			435.84	0.00	0.00	60.00	15.86	0.26
P16, P52, P88, P124, P160, P196, P339, P	48			432.65	0.00	0.00	60.00	15.86	0.26
P16, P52, P88, P124, P160, P196, P339, P	48.25			429.46	0.00	0.00	60.00	15.86	0.26
P341, P342, P343, P629, P630, P631, P91	48.5			426.27	0.00	0.00	60.00	15.86	0.26
P341, P342, P343, P629, P630, P631, P91	48.75			423.09	0.00	0.00	60.00	15.86	0.26
P341, P342, P343, P629, P630, P631, P91	49			419.90	0.00	0.00	60.00	15.86	0.26
P341, P342, P343, P629, P630, P631, P91	49.25			416.71	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	49.5			413.52	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	49.75			410.34	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	50			407.15	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	50.25			403.96	0.00	0.00	60.00	15.86	0.26
P344, P345, P346, P632, P633, P634, P92	50.5			400.77	0.00	0.00	60.00	15.86	0.26
P17, P53, P89, P125, P161, P197, P347, P	50.75			990.22	0.00	0.00	60.00	15.86	0.26
P17, P53, P89, P125, P161, P197, P347, P	51			959.19	0.00	0.00	60.00	15.86	0.26
P17, P53, P89, P125, P161, P197, P347, P	51.25			873.71	0.00	0.00	60.00	15.86	0.26
P17, P53, P89, P125, P161, P197, P347, P	51.5			969.77	0.00	0.00	60.00	15.86	0.26
P17, P53, P89, P125, P161, P197, P347, P	51.75			-292.10	0.00	0.00	60.00	15.86	0.26
P197, P349, P350, P351, P637, P638, P63	52			-284.09	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	52.25			-375.33	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	52.5			-504.55	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	52.75			-304.95	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	53			-308.16	0.00	0.00	60.00	15.86	0.26
P349, P350, P351, P637, P638, P639, P92	53.25			-311.37	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	53.5			-472.99	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	53.75			-317.79	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	54			-321.00	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	54.25			-324.22	0.00	0.00	60.00	15.86	0.26
P352, P353, P354, P640, P641, P642, P92	54.5			-327.43	0.00	0.00	60.00	15.86	0.26
P18, P54, P90, P126, P162, P198, P355, P	54.75			-330.64	0.00	0.00	60.00	15.86	0.26
P18, P54, P90, P126, P162, P198, P355, P	55			-333.82	0.00	0.00	60.00	15.86	0.26
P18, P54, P90, P126, P162, P198, P355, P	55.25			-337.01	0.00	0.00	60.00	15.86	0.26
P18, P54, P90, P126, P162, P198, P355, P	55.5			-340.20	0.00	0.00	60.00	15.86	0.26
P357, P358, P359, P645, P646, P647, P93	55.75			-343.39	0.00	0.00	60.00	15.86	0.26
P357, P358, P359, P645, P646, P647, P93	56			-346.57	0.00	0.00	60.00	15.86	0.26
P357, P358, P359, P645, P646, P647, P93	56.25			-349.76	0.00	0.00	60.00	15.86	0.26
P357, P358, P359, P645, P646, P647, P93	56.5			-352.95	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	56.75			-356.14	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	57			-359.32	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	57.25			-362.51	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	57.5			-365.70	0.00	0.00	60.00	15.86	0.26
P360, P361, P362, P648, P649, P650, P93	57.75			-368.89	0.00	0.00	60.00	14.98	0.25
P19, P55, P91, P127, P163, P199, P363, P	58			-372.07	0.00	0.00	60.00	14.98	0.25

P19, P55, P91, P127, P163, P199, P363, P	58.25			-375.26	0.00	0.00	60.00	14.98	0.25
P19, P55, P91, P127, P163, P199, P363, P	58.5			-378.45	0.00	0.00	60.00	14.98	0.25
P19, P55, P91, P127, P163, P199, P363, P	58.75			-381.64	0.00	0.00	60.00	14.98	0.25
P365, P366, P367, P653, P654, P655, P94	59			-384.83	0.00	0.00	60.00	14.98	0.25
P365, P366, P367, P653, P654, P655, P94	59.25			-388.01	0.00	0.00	60.00	14.98	0.25
P365, P366, P367, P653, P654, P655, P94	59.5			-391.20	0.00	0.00	60.00	14.98	0.25
P365, P366, P367, P653, P654, P655, P94	59.75			-394.39	0.00	0.00	60.00	14.98	0.25
P368, P369, P370, P656, P657, P658, P94	60			-397.58	0.00	0.00	60.00	14.98	0.25
P368, P369, P370, P656, P657, P658, P94	60.25			-400.76	0.00	0.00	60.00	14.98	0.25
P368, P369, P370, P656, P657, P658, P94	60.5			-403.95	0.00	0.00	60.00	14.98	0.25
P368, P369, P370, P656, P657, P658, P94	60.75			-407.14	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	61			-410.35	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	61.25			-413.56	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	61.5			-416.77	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	61.75			-419.98	0.00	0.00	60.00	14.98	0.25
P20, P56, P92, P128, P164, P200, P371, P	62			-303.00	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	62.25			-426.40	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	62.5			-429.62	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	62.75			-432.83	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	63			-200.07	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	63.25			-325.83	0.00	0.00	60.00	14.98	0.25
P373, P374, P375, P661, P662, P663, P94	63.5			-422.73	0.00	0.00	60.00	14.98	0.25
P376, P377, P378, P664, P665, P666, P95	63.75			-445.67	0.00	0.00	60.00	14.98	0.25
P376, P377, P378, P664, P665, P666, P95	64			-1732.96	430.47	20.16	39.84	14.98	0.59
P376, P377, P378, P664, P665, P666, P95	64.25			-1620.35	317.86	14.89	45.11	14.98	0.50
P376, P377, P378, P664, P665, P666, P95	64.5			-1702.89	400.39	18.75	41.25	14.98	0.56
P376, P377, P378, P664, P665, P666, P95	64.75			-1746.80	444.31	20.81	39.19	14.98	0.60
P376, P377, P378, P664, P665, P666, P95	65			-1851.81	549.32	25.73	34.27	14.98	0.68
P21, P57, P93, P129, P165, P201, P379, P	65.25			185.82	0.00	0.00	60.00	14.98	0.25
P21, P57, P93, P129, P165, P201, P379, P	65.5			182.63	0.00	0.00	60.00	14.98	0.25
P21, P57, P93, P129, P165, P201, P379, P	65.75			179.44	0.00	0.00	60.00	14.98	0.25
P21, P57, P93, P129, P165, P201, P379, P	66			176.26	0.00	0.00	60.00	14.98	0.25
P381, P382, P383, P669, P670, P671, P95	66.25			173.07	0.00	0.00	60.00	14.98	0.25
P381, P382, P383, P669, P670, P671, P95	66.5			169.88	0.00	0.00	60.00	14.98	0.25
P381, P382, P383, P669, P670, P671, P95	66.75			166.69	0.00	0.00	60.00	14.98	0.25
P381, P382, P383, P669, P670, P671, P95	67			163.51	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	67.25			160.32	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	67.5			157.13	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	67.75			153.94	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	68			150.76	0.00	0.00	60.00	14.98	0.25
P384, P385, P386, P672, P673, P674, P96	68.25			147.57	0.00	0.00	60.00	10.07	0.17
P22, P58, P94, P130, P166, P202, P387, P	68.5			144.38	0.00	0.00	60.00	10.07	0.17
P22, P58, P94, P130, P166, P202, P387, P	68.75			141.19	0.00	0.00	60.00	10.07	0.17
P22, P58, P94, P130, P166, P202, P387, P	69			138.01	0.00	0.00	60.00	10.07	0.17
P22, P58, P94, P130, P166, P202, P387, P	69.25			134.82	0.00	0.00	60.00	10.07	0.17
P389, P390, P391, P677, P678, P679, P96	69.5			131.63	0.00	0.00	60.00	10.07	0.17
P389, P390, P391, P677, P678, P679, P96	69.75			128.44	0.00	0.00	60.00	10.07	0.17
P389, P390, P391, P677, P678, P679, P96	70			125.25	0.00	0.00	60.00	10.07	0.17
P389, P390, P391, P677, P678, P679, P96	70.25			122.07	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	70.5			118.88	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	70.75			115.69	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	71			112.50	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	71.25			109.32	0.00	0.00	60.00	10.07	0.17
P392, P393, P394, P680, P681, P682, P96	71.5			106.13	0.00	0.00	60.00	10.07	0.17
P23, P59, P95, P131, P167, P203, P395, P	71.75			525.98	0.00	0.00	60.00	10.07	0.17
P23, P59, P95, P131, P167, P203, P395, P	72			522.80	0.00	0.00	60.00	10.07	0.17
P23, P59, P95, P131, P167, P203, P395, P	72.25			519.61	0.00	0.00	60.00	10.07	0.17
P23, P59, P95, P131, P167, P203, P395, P	72.5			516.42	0.00	0.00	60.00	10.07	0.17
P23, P59, P95, P131, P167, P203, P395, P	72.75			513.23	0.00	0.00	60.00	10.07	0.17

P23, P59, P95, P131, P167, P203, P395, P	73			510.05	0.00	0.00	60.00	10.07	0.17
P397, P398, P399, P685, P686, P687, P97	73.25			506.86	0.00	0.00	60.00	10.07	0.17
P397, P398, P399, P685, P686, P687, P97	73.5			503.67	0.00	0.00	60.00	10.07	0.17
P397, P398, P399, P685, P686, P687, P97	73.75			500.48	0.00	0.00	60.00	10.07	0.17
P397, P398, P399, P685, P686, P687, P97	74			497.30	0.00	0.00	60.00	10.07	0.17
P397, P398, P399, P685, P686, P687, P97	74.25			494.11	0.00	0.00	60.00	10.07	0.17
P397, P398, P399, P685, P686, P687, P97	74.5			490.92	0.00	0.00	60.00	10.07	0.17
P400, P401, P402, P688, P689, P690, P97	74.75			487.73	0.00	0.00	60.00	10.07	0.17
P400, P401, P402, P688, P689, P690, P97	75			484.54	0.00	0.00	60.00	10.07	0.17
P400, P401, P402, P688, P689, P690, P97	75.25			481.36	0.00	0.00	60.00	10.07	0.17
P400, P401, P402, P688, P689, P690, P97	75.5			478.17	0.00	0.00	60.00	10.07	0.17
P400, P401, P402, P688, P689, P690, P97	75.75			474.98	0.00	0.00	60.00	10.07	0.17
P400, P401, P402, P688, P689, P690, P97	76			471.79	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	76.25			-670.39	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	76.5			-673.58	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	76.75			-676.77	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	77			-679.96	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	77.25			-683.14	0.00	0.00	60.00	10.07	0.17
P24, P60, P96, P132, P168, P204, P403, P	77.5			-686.33	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	77.75			-689.52	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	78			-692.71	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	78.25			-695.90	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	78.5			-699.08	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	78.75			-702.27	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	79			-705.46	0.00	0.00	60.00	10.07	0.17
P405, P406, P407, P693, P694, P695, P98	79.25			-708.65	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	79.5			-711.83	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	79.75			-715.02	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	80			-718.21	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	80.25			-721.40	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	80.5			-724.58	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	80.75			-727.77	0.00	0.00	60.00	10.07	0.17
P408, P409, P410, P696, P697, P698, P98	81			-730.96	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	81.25			-734.15	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	81.5			-737.33	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	81.75			-740.52	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	82			-743.71	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	82.25			-746.90	0.00	0.00	60.00	15.27	0.25
P25, P61, P97, P133, P169, P205, P411, P	82.5			-750.09	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	82.75			-753.27	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	83			-756.46	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	83.25			-759.65	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	83.5			-762.84	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	83.75			-766.02	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	84			-769.21	0.00	0.00	60.00	15.27	0.25
P413, P414, P415, P701, P702, P703, P98	84.25			-772.40	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	84.5			-775.59	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	84.75			-778.77	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	85			-781.96	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	85.25			-785.15	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	85.5			-788.34	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	85.75			-791.53	0.00	0.00	60.00	15.27	0.25
P416, P417, P418, P704, P705, P706, P99	86			-794.71	0.00	0.00	60.00	15.27	0.25
P26, P62, P98, P134, P170, P206, P419, P	86.25			553.64	0.00	0.00	60.00	15.27	0.25
P26, P62, P98, P134, P170, P206, P419, P	86.5			550.45	0.00	0.00	60.00	15.27	0.25
P421, P422, P423, P709, P710, P711, P99	86.75			547.26	0.00	0.00	60.00	15.27	0.25
P421, P422, P423, P709, P710, P711, P99	87			544.07	0.00	0.00	60.00	15.27	0.25
P421, P422, P423, P709, P710, P711, P99	87.25			540.89	0.00	0.00	60.00	15.27	0.25
P424, P425, P426, P712, P713, P714, P10	87.5			537.70	0.00	0.00	60.00	15.27	0.25

P424, P425, P426, P712, P713, P714, P10	87.75			534.51	0.00	0.00	60.00	15.27	0.25
P424, P425, P426, P712, P713, P714, P10	88			531.32	0.00	0.00	60.00	15.27	0.25
P27, P63, P99, P135, P171, P207, P427, P	88.25			43.61	0.00	0.00	60.00	15.27	0.25
P27, P63, P99, P135, P171, P207, P427, P	88.5			40.42	0.00	0.00	60.00	15.27	0.25
P429, P430, P431, P717, P718, P719, P10	88.75			37.23	0.00	0.00	60.00	15.27	0.25
P432, P433, P434, P720, P721, P722, P10	89			34.04	0.00	0.00	60.00	15.27	0.25
P432, P433, P434, P720, P721, P722, P10	89.25			30.86	0.00	0.00	60.00	18.44	0.31
P28, P64, P100, P136, P172, P208, P435,	89.5			27.67	0.00	0.00	60.00	18.44	0.31
P28, P64, P100, P136, P172, P208, P435,	89.75			24.48	0.00	0.00	60.00	18.44	0.31
P28, P64, P100, P136, P172, P208, P435,	90			21.29	0.00	0.00	60.00	18.44	0.31
P28, P64, P100, P136, P172, P208, P435,	90.25			18.10	0.00	0.00	60.00	18.44	0.31
P437, P438, P439, P725, P726, P727, P10	90.5			14.92	0.00	0.00	60.00	18.44	0.31
P437, P438, P439, P725, P726, P727, P10	90.75			11.73	0.00	0.00	60.00	18.44	0.31
P437, P438, P439, P725, P726, P727, P10	91			8.54	0.00	0.00	60.00	18.44	0.31
P437, P438, P439, P725, P726, P727, P10	91.25			5.35	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	91.5			2.17	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	91.75			-1.02	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	92			-4.21	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	92.25			-7.40	0.00	0.00	60.00	18.44	0.31
P440, P441, P442, P728, P729, P730, P10	92.5			-10.58	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	92.75			165.62	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	93			162.44	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	93.25			159.25	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	93.5			156.06	0.00	0.00	60.00	18.44	0.31
P29, P65, P101, P137, P173, P209, P443,	93.75			152.87	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	94			149.69	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	94.25			146.50	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	94.5			143.31	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	94.75			140.12	0.00	0.00	60.00	18.44	0.31
P445, P446, P447, P733, P734, P735, P10	95			136.93	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	95.25			133.75	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	95.5			130.56	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	95.75			127.37	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	96			124.18	0.00	0.00	60.00	18.44	0.31
P448, P449, P450, P736, P737, P738, P10	96.25			121.00	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	96.5			117.81	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	96.75			114.62	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	97			111.43	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	97.25			108.25	0.00	0.00	60.00	18.44	0.31
P30, P66, P102, P138, P174, P210, P451,	97.5			105.06	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	97.75			101.87	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	98			98.68	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	98.25			95.49	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	98.5			92.31	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	98.75			89.12	0.00	0.00	60.00	18.44	0.31
P453, P454, P455, P741, P742, P743, P10	99			85.93	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	99.25			82.74	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	99.5			79.56	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	99.75			76.37	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	100			73.18	0.00	0.00	60.00	18.44	0.31
P456, P457, P458, P744, P745, P746, P10	100.25			69.99	0.00	0.00	60.00	18.44	0.31
P31, P67, P103, P139, P175, P211, P459,	100.5			-1055.19	0.00	0.00	60.00	18.80	0.31
P31, P67, P103, P139, P175, P211, P459,	100.75			-1058.38	0.00	0.00	60.00	18.80	0.31
P31, P67, P103, P139, P175, P211, P459,	101			-1061.57	0.00	0.00	60.00	18.80	0.31
P31, P67, P103, P139, P175, P211, P459,	101.25			-1064.76	0.00	0.00	60.00	18.80	0.31
P461, P462, P463, P749, P750, P751, P10	101.5			-1067.94	0.00	0.00	60.00	18.80	0.31
P461, P462, P463, P749, P750, P751, P10	101.75			-1071.13	0.00	0.00	60.00	18.80	0.31
P461, P462, P463, P749, P750, P751, P10	102			-1074.32	0.00	0.00	60.00	18.80	0.31
P461, P462, P463, P749, P750, P751, P10	102.25			-1077.51	0.00	0.00	60.00	18.80	0.31

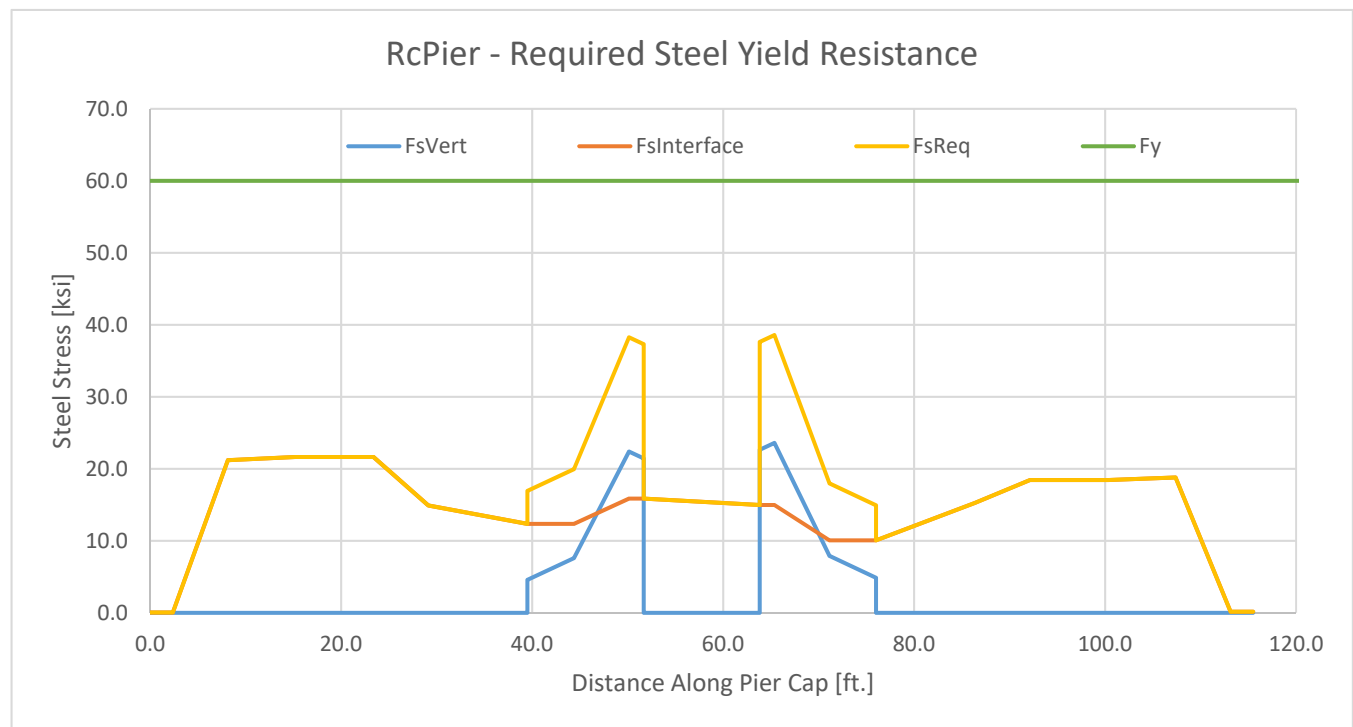
P461, P462, P463, P749, P750, P751, P10	102.5			-1080.70	0.00	0.00	60.00	18.80	0.31
P464, P465, P466, P752, P753, P754, P10	102.75			-1083.88	0.00	0.00	60.00	18.80	0.31
P464, P465, P466, P752, P753, P754, P10	103			-1087.07	0.00	0.00	60.00	18.80	0.31
P464, P465, P466, P752, P753, P754, P10	103.25			-1090.26	0.00	0.00	60.00	18.80	0.31
P464, P465, P466, P752, P753, P754, P10	103.5			-1093.45	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	103.75			-1096.63	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	104			-1099.82	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	104.25			-1103.01	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	104.5			-1106.20	0.00	0.00	60.00	18.80	0.31
P32, P68, P104, P140, P176, P212, P467,	104.75			-1109.38	0.00	0.00	60.00	18.80	0.31
P469, P470, P471, P757, P758, P759, P10	105			-1112.57	0.00	0.00	60.00	18.80	0.31
P469, P470, P471, P757, P758, P759, P10	105.25			-1115.76	0.00	0.00	60.00	18.80	0.31
P469, P470, P471, P757, P758, P759, P10	105.5			-1118.95	0.00	0.00	60.00	18.80	0.31
P469, P470, P471, P757, P758, P759, P10	105.75			-1122.13	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	106			-1125.32	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	106.25			-1128.51	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	106.5			-1131.70	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	106.75			-1134.89	0.00	0.00	60.00	18.80	0.31
P472, P473, P474, P760, P761, P762, P10	107			-1138.07	0.00	0.00	60.00	18.80	0.31
P33, P69, P105, P141, P177, P213, P475,	107.25			567.20	0.00	0.00	60.00	18.80	0.31
P33, P69, P105, P141, P177, P213, P475,	107.5			564.01	0.00	0.00	60.00	18.80	0.31
P33, P69, P105, P141, P177, P213, P475,	107.75			560.82	0.00	0.00	60.00	18.80	0.31
P33, P69, P105, P141, P177, P213, P475,	108			557.63	0.00	0.00	60.00	18.80	0.31
P477, P478, P479, P765, P766, P767, P10	108.25			554.45	0.00	0.00	60.00	18.80	0.31
P477, P478, P479, P765, P766, P767, P10	108.5			551.26	0.00	0.00	60.00	18.80	0.31
P477, P478, P479, P765, P766, P767, P10	108.75			548.07	0.00	0.00	60.00	18.80	0.31
P477, P478, P479, P765, P766, P767, P10	109			544.88	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	109.25			541.70	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	109.5			538.51	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	109.75			535.32	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	110			532.13	0.00	0.00	60.00	18.80	0.31
P480, P481, P482, P768, P769, P770, P10	110.25			528.95	0.00	0.00	60.00	0.16	0.00
P34, P70, P106, P142, P178, P214, P483,	110.5			525.76	0.00	0.00	60.00	0.16	0.00
P34, P70, P106, P142, P178, P214, P483,	110.75			522.57	0.00	0.00	60.00	0.16	0.00
P34, P70, P106, P142, P178, P214, P483,	111			519.38	0.00	0.00	60.00	0.16	0.00
P485, P486, P487, P773, P774, P775, P10	111.25			516.19	0.00	0.00	60.00	0.16	0.00
P485, P486, P487, P773, P774, P775, P10	111.5			513.01	0.00	0.00	60.00	0.16	0.00
P485, P486, P487, P773, P774, P775, P10	111.75			509.82	0.00	0.00	60.00	0.16	0.00
P488, P489, P490, P776, P777, P778, P10	112			506.63	0.00	0.00	60.00	0.16	0.00
P488, P489, P490, P776, P777, P778, P10	112.25			503.44	0.00	0.00	60.00	0.16	0.00
P488, P489, P490, P776, P777, P778, P10	112.5			500.26	0.00	0.00	60.00	0.16	0.00
P35, P71, P107, P143, P179, P215, P491,	112.75			-138.84	0.00	0.00	60.00	0.16	0.00
P493, P494, P495, P781, P782, P783, P10	113			-142.03	0.00	0.00	60.00	0.16	0.00
P496, P497, P498, P784, P785, P786, P10	113.25			-145.22	0.00	0.00	60.00	0.16	0.00
P496, P497, P498, P784, P785, P786, P10	113.5			-148.41	0.00	0.00	60.00	0.16	0.00
P36, P72, P108, P144, P180, P216, P499,	113.75			22.31	0.00	0.00	60.00	0.16	0.00
P36, P72, P108, P144, P180, P216, P499,	114			19.13	0.00	0.00	60.00	0.16	0.00
P501, P502, P503, P789, P790, P791, P10	114.25			15.94	0.00	0.00	60.00	0.16	0.00
P501, P502, P503, P789, P790, P791, P10	114.5			12.75	0.00	0.00	60.00	0.16	0.00
P501, P502, P503, P789, P790, P791, P10	114.75			9.56	0.00	0.00	60.00	0.16	0.00
P504, P505, P506, P792, P793, P794, P10	115			6.38	0.00	0.00	60.00	0.16	0.00
P504, P505, P506, P792, P793, P794, P10	115.25			3.19	0.00	0.00	60.00	0.16	0.00
P504, P505, P506, P792, P793, P794, P10	115.5			0.00	0.00	0.00	60.00	0.16	0.00
Extreme Event I								Max	0.68



RcPier Results

(Plotted above)

Loc. [ft.]	VuEE[kip]	VsReq	Fsv	FyAvail.	FsInter	FsTot	Check
0	0	0.00	0.00	60.0	0.04	0.04	0.00
2.37	31.6	0.00	0.00	60.0	0.04	0.04	0.00
8.13	1190.9	0.00	0.00	60.0	21.20	21.20	0.35
15.17	1097.2	0.00	0.00	60.0	21.65	21.65	0.36
15.17	1015.1	0.00	0.00	60.0	21.65	21.65	0.36
23.37	1124.3	0.00	0.00	60.0	21.65	21.65	0.36
29.13	737.6	0.00	0.00	60.0	14.90	14.90	0.25
39.5	599.4	0.00	0.00	60.0	12.35	12.35	0.21
39.5	1400.1	97.61	4.57	55.4	12.35	16.92	0.28
44.37	1464.9	162.41	7.61	52.4	12.35	19.96	0.33
50.13	1780.9	478.41	22.41	37.6	15.86	38.27	0.64
51.67	1760.4	457.91	21.45	38.6	15.86	37.31	0.62
51.67	314.6	0.00	0.00	60.0	15.86	15.86	0.26
63.83	299.8	0.00	0.00	60.0	14.98	14.98	0.25
63.83	1785.8	483.31	22.64	37.4	14.98	37.62	0.63
65.37	1806.3	503.81	23.60	36.4	14.98	38.58	0.64
71.13	1471.4	168.91	7.91	52.1	10.07	17.98	0.30
76	1406.5	104.01	4.87	55.1	10.07	14.94	0.25
76	584.5	0.00	0.00	60.0	10.07	10.07	0.17
86.37	722.6	0.00	0.00	60.0	15.27	15.27	0.25
92.13	113.8	0.00	0.00	60.0	18.44	18.44	0.31
100.33	1004.5	0.00	0.00	60.0	18.44	18.44	0.31
100.33	1074.2	0.00	0.00	60.0	18.44	18.44	0.31
107.37	1168	0.00	0.00	60.0	18.80	18.80	0.31
113.13	31.6	0.00	0.00	60.0	0.16	0.16	0.00
115.5	0	0.00	0.00	60.0	0.16	0.16	0.00
Extreme Event I						Max	0.64



Based on design loads provided, sufficient vertical reinforcement is provided for the full length of cap for the conservatively combined interface and vertical shear required reinforcement.

Fatigue Results

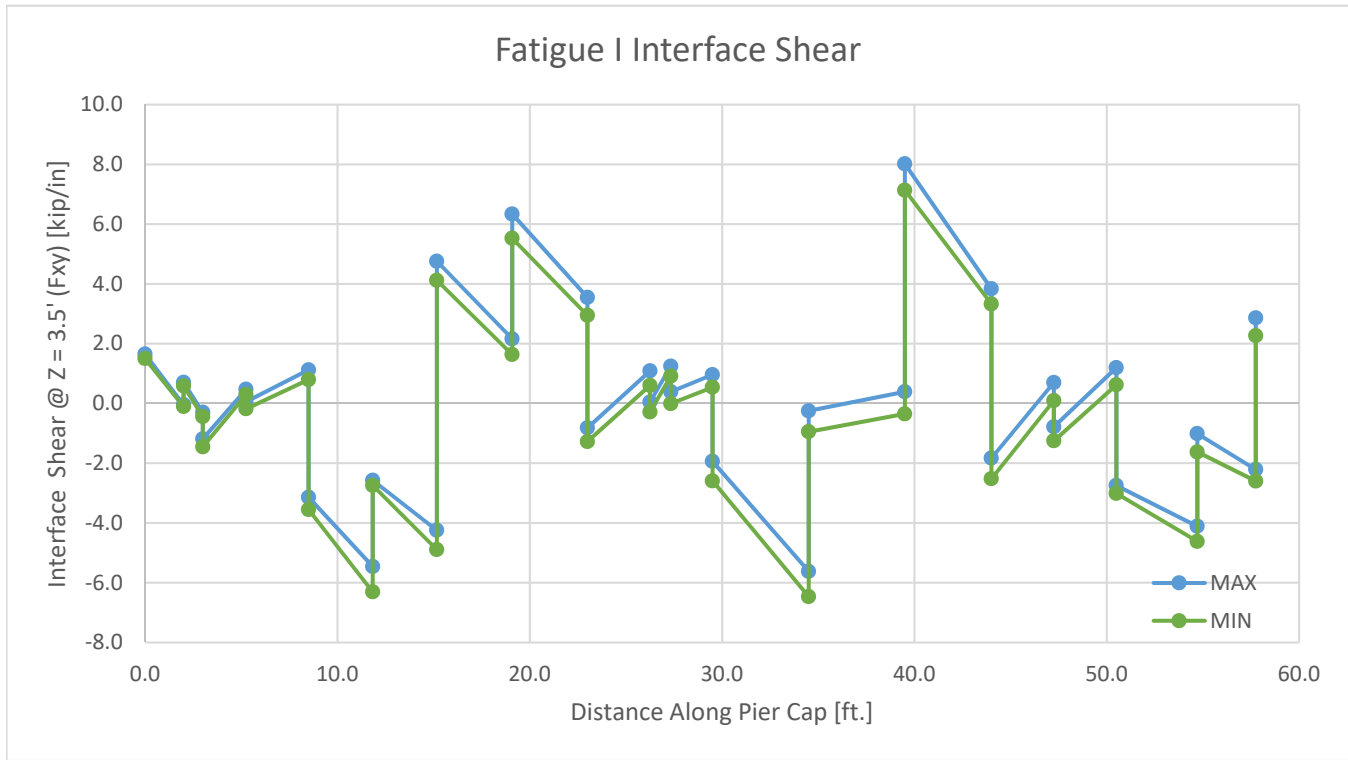
Fatigue I Interface Shear

AASHTO LRFD gives no guidances on evaluate shear under dynamic loadings i.e. fatigue. However, CEB-FIP 2010 states that fatigue loading should be evaluated from resistances calculated for strength, reduced to 40%. A comparison between CEB-FIP 2010 and AASHTO shows that the calculated resistances from each are similar. Therefore, it is appropriate to apply the 60% reduction directly to the the AASHTO calculated resistances.

Resistance Factor, $\Phi = 1$ -Reduction		0.40	[\]
Fatigue I Load Factors	DC	1.0	[\]
	LL	1.75	[\]

Calculate interface shear under fatigue loads.

JOINT	PLATE	ID	X [FT.]	Fat I [kip/in.]			x1-x0 [in.]	(y0+y1)/ 2	Fxy [kip]	Fxy [ksi]
				MAX	MIN	RANGE				
75	37	3775	0.00	1.65	1.50	0.151				
76	37	3776	2.00	-0.04	-0.11	0.065	24	0.108	2.59	0.12
76	38	3876	2.00	0.70	0.59	0.115	0	0.090	0.00	0.12
77	38	3877	3.00	-0.30	-0.44	0.147	12	0.131	1.57	0.12
77	39	3977	3.00	-1.19	-1.45	0.268	0	0.207	0.00	0.12
78	39	3978	5.25	0.47	0.30	0.176	27	0.222	5.99	0.28
78	40	4078	5.25	0.06	-0.18	0.238	0	0.207	0.00	0.28
79	40	4079	8.50	1.12	0.80	0.326	39	0.282	11.01	0.52
79	41	4179	8.50	-3.14	-3.55	0.411	0	0.369	0.00	0.52
80	41	4180	11.83	-5.46	-6.31	0.850	40	0.631	25.23	1.18
80	42	4280	11.83	-2.57	-2.75	0.173	0	0.511	0.00	1.18
81	42	4281	15.17	-4.24	-4.89	0.648	40	0.410	16.41	1.18
81	43	4381	15.17	4.76	4.12	0.637	0	0.642	0.00	1.18
82	43	4382	19.08	2.16	1.63	0.528	47	0.582	27.36	1.28
82	44	4482	19.08	6.34	5.53	0.810	0	0.669	0.00	1.28
83	44	4483	23.00	3.55	2.95	0.601	47	0.706	33.17	1.55
83	45	4583	23.00	-0.82	-1.28	0.457	0	0.529	0.00	1.55
84	45	4584	26.25	1.09	0.60	0.485	39	0.471	18.36	1.55
84	46	4684	26.25	0.04	-0.29	0.330	0	0.407	0.00	1.55
85	46	4685	27.33	1.25	0.91	0.334	13	0.332	4.32	1.55
85	47	4785	27.33	0.39	-0.01	0.400	0	0.367	0.00	1.55
86	47	4786	29.50	0.96	0.54	0.420	26	0.410	10.67	1.55
86	48	4886	29.50	-1.94	-2.59	0.655	0	0.538	0.00	1.55
87	48	4887	34.50	-5.62	-6.47	0.847	60	0.751	45.04	2.11
87	49	4987	34.50	-0.25	-0.95	0.697	0	0.772	0.00	2.11
88	49	4988	39.50	0.39	-0.35	0.740	60	0.719	43.12	2.11
88	50	5088	39.50	8.02	7.13	0.884	0	0.812	0.00	2.11
89	50	5089	44.00	3.83	3.33	0.507	54	0.696	37.57	2.11
89	51	5189	44.00	-1.83	-2.52	0.692	0	0.599	0.00	2.11
90	51	5190	47.25	0.70	0.09	0.606	39	0.649	25.31	2.11
90	52	5290	47.25	-0.78	-1.25	0.468	0	0.537	0.00	2.11
91	52	5291	50.50	1.20	0.62	0.577	39	0.523	20.38	2.11
91	53	5391	50.50	-2.75	-3.01	0.265	0	0.421	0.00	2.11
92	53	5392	54.71	-4.11	-4.62	0.506	50.5	0.386	19.48	2.11
92	54	5492	54.71	-1.01	-1.62	0.613	0	0.560	0.00	2.11
93	54	5493	57.75	-2.21	-2.60	0.389	36.5	0.501	18.28	2.11
93	55	5593	57.75	2.86	2.26	0.595	0	0.492	0.00	2.11



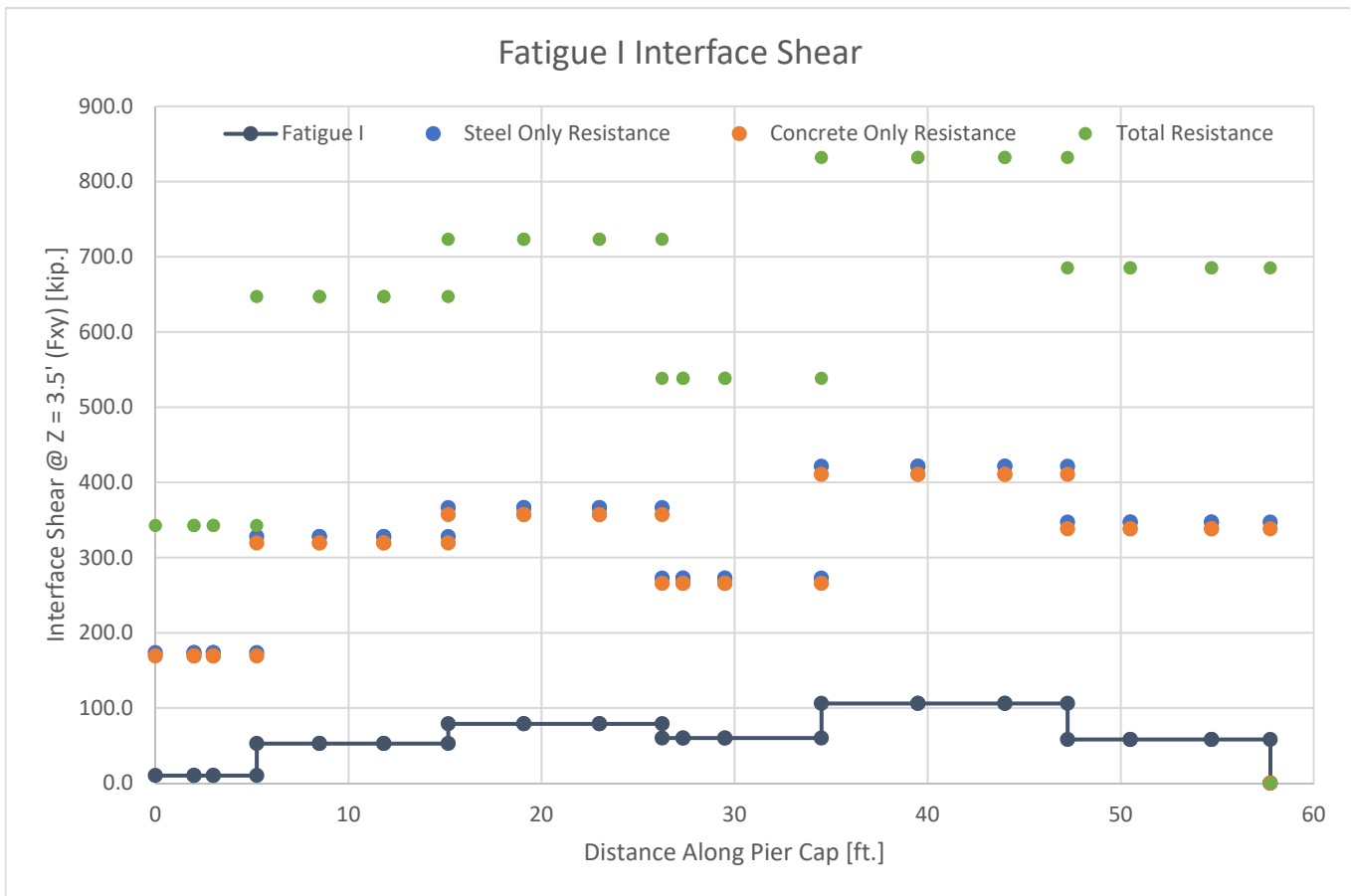
Fatigue I

ID	X [FT.]	Fxy [kip]	Total Fxy [kip]	Conc. Resist. [kip]	Steel Resist. [kip]	Total Resist. [kip]	CONC. DC Ratio	STEEL DC Ratio	TOTAL DC Ratio
3775	0.00		10.15	169.1	173.5	342.6	0.06	0.06	0.03
3776	2.00	2.59	10.15	169.1	173.5	342.6	0.06	0.06	0.03
3876	2.00	0.00	10.15	169.1	173.5	342.6	0.06	0.06	0.03
3877	3.00	1.57	10.15	169.1	173.5	342.6	0.06	0.06	0.03
3977	3.00	0.00	10.15	169.1	173.5	342.6	0.06	0.06	0.03
3978	5.25	5.99	10.15	169.1	173.5	342.6	0.06	0.06	0.03
4078	5.25	0.00	52.64	319.3	327.7	647.1	0.16	0.16	0.08
4079	8.50	11.01	52.64	319.3	327.7	647.1	0.16	0.16	0.08
4179	8.50	0.00	52.64	319.3	327.7	647.1	0.16	0.16	0.08
4180	11.83	25.23	52.64	319.3	327.7	647.1	0.16	0.16	0.08
4280	11.83	0.00	52.64	319.3	327.7	647.1	0.16	0.16	0.08
4281	15.17	16.41	52.64	319.3	327.7	647.1	0.16	0.16	0.08
4381	15.17	0.00	78.89	356.9	366.3	723.2	0.22	0.22	0.11
4382	19.08	27.36	78.89	356.9	366.3	723.2	0.22	0.22	0.11
4482	19.08	0.00	78.89	356.9	366.3	723.2	0.22	0.22	0.11
4483	23.00	33.17	78.89	356.9	366.3	723.2	0.22	0.22	0.11
4583	23.00	0.00	78.89	356.9	366.3	723.2	0.22	0.22	0.11
4584	26.25	18.36	78.89	356.9	366.3	723.2	0.22	0.22	0.11
4684	26.25	0.00	60.03	265.7	272.6	538.3	0.23	0.22	0.11
4685	27.33	4.32	60.03	265.7	272.6	538.3	0.23	0.22	0.11
4785	27.33	0.00	60.03	265.7	272.6	538.3	0.23	0.22	0.11
4786	29.50	10.67	60.03	265.7	272.6	538.3	0.23	0.22	0.11
4886	29.50	0.00	60.03	265.7	272.6	538.3	0.23	0.22	0.11
4887	34.50	45.04	60.03	265.7	272.6	538.3	0.23	0.22	0.11
4987	34.50	0.00	106.01	410.6	421.4	831.9	0.26	0.25	0.13
4988	39.50	43.12	106.01	410.6	421.4	831.9	0.26	0.25	0.13
5088	39.50	0.00	106.01	410.6	421.4	831.9	0.26	0.25	0.13
5089	44.00	37.57	106.01	410.6	421.4	831.9	0.26	0.25	0.13

5189	44.00
5190	47.25
5290	47.25
5291	50.50
5391	50.50
5392	54.71
5492	54.71
5493	57.75
5593	57.75

0.00	106.01	410.6	421.4	831.9	0.26	0.25	0.13
25.31	106.01	410.6	421.4	831.9	0.26	0.25	0.13
0.00	58.14	338.1	347.0	685.1	0.17	0.17	0.08
20.38	58.14	338.1	347.0	685.1	0.17	0.17	0.08
0.00	58.14	338.1	347.0	685.1	0.17	0.17	0.08
19.48	58.14	338.1	347.0	685.1	0.17	0.17	0.08
0.00	58.14	338.1	347.0	685.1	0.17	0.17	0.08
18.28	58.14	338.1	347.0	685.1	0.17	0.17	0.08
0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00

Fatigue I		Concrete Only DC	Steel Only DC	Total DC
Note that concrete and steel resistances were calculated in strength calculations. These were then multiplied by the resistance factor defined above.	Max.	0.26	0.25	0.13



Fatigue I Combined Vertical & Interface Shear

To ensure long term durability, check fatigue stress vertical shear reinforcement per AASHTO 5.5.3.

Conservatively assume vertical shear and interface shear due to fatigue are resisted only by vertical steel.

Fatigue loads extracted from LARSA

Loads are multiplied by the cap width to represent total cap load

Elements	X [ft.]	Shear [kip]			Fatigue I [kip]		
		DC	FatMax	FatMin	MAX	MIN	RANGE
P1, P37, P73, P109, P145, P181	0	0.00	0.00	0.00	0.00	0.00	0.00
P1, P37, P73, P109, P145, P181	0.25	-3.19	0.00	0.00	-3.19	-3.19	0.00
P1, P37, P73, P109, P145, P181	0.5	-6.38	0.00	0.00	-6.38	-6.38	0.00
P1, P37, P73, P109, P145, P181	0.75	-9.56	0.00	0.00	-9.56	-9.56	0.00
P1, P37, P73, P109, P145, P181	1	-12.75	0.00	0.00	-12.75	-12.75	0.00
P1, P37, P73, P109, P145, P181	1.25	-15.94	0.00	0.00	-15.94	-15.94	0.00
P1, P37, P73, P109, P145, P181	1.5	-19.13	0.00	0.00	-19.13	-19.13	0.00
P1, P37, P73, P109, P145, P181	1.75	-22.31	0.00	0.00	-22.31	-22.31	0.00
P1, P37, P73, P109, P145, P181	2	-25.50	0.00	0.00	-25.50	-25.50	0.00
P2, P38, P74, P110, P146, P182	2.25	344.79	17.77	-2.05	375.89	341.21	34.67
P2, P38, P74, P110, P146, P182	2.5	341.61	17.77	-2.05	372.70	338.03	34.67
P2, P38, P74, P110, P146, P182	2.75	338.42	17.77	-2.05	369.51	334.84	34.67
P2, P38, P74, P110, P146, P182	3	335.23	17.77	-2.05	366.32	331.65	34.67
P3, P39, P75, P111, P147, P183	3.25	-147.72	8.66	-6.58	-132.57	-159.24	26.68
P3, P39, P75, P111, P147, P183	3.5	-150.91	8.66	-6.58	-135.75	-162.43	26.68
P3, P39, P75, P111, P147, P183	3.75	-154.09	8.66	-6.58	-138.94	-165.62	26.68
P3, P39, P75, P111, P147, P183	4	-157.28	8.66	-6.58	-142.13	-168.80	26.68
P3, P39, P75, P111, P147, P183	4.25	-160.47	8.66	-6.58	-145.32	-171.99	26.68
P3, P39, P75, P111, P147, P183	4.5	-163.66	8.66	-6.58	-148.50	-175.18	26.68
P3, P39, P75, P111, P147, P183	4.75	-166.84	8.66	-6.58	-151.69	-178.37	26.68
P3, P39, P75, P111, P147, P183	5	-170.03	8.66	-6.58	-154.88	-181.56	26.68
P3, P39, P75, P111, P147, P183	5.25	-173.22	8.66	-6.58	-158.07	-184.74	26.68
P4, P40, P76, P112, P148, P184	5.5	-176.41	8.66	-6.58	-161.26	-187.93	26.68
P4, P40, P76, P112, P148, P184	5.75	-179.60	8.66	-6.58	-164.44	-191.12	26.68
P4, P40, P76, P112, P148, P184	6	-182.78	8.66	-6.58	-167.63	-194.31	26.68
P4, P40, P76, P112, P148, P184	6.25	-185.97	8.66	-6.58	-170.82	-197.49	26.68
P4, P40, P76, P112, P148, P184	6.5	-189.16	8.66	-6.58	-174.01	-200.68	26.68
P4, P40, P76, P112, P148, P184	6.75	-192.35	8.66	-6.58	-177.19	-203.87	26.68
P4, P40, P76, P112, P148, P184	7	-195.53	8.66	-6.58	-180.38	-207.06	26.68
P4, P40, P76, P112, P148, P184	7.25	-198.72	8.66	-6.58	-183.57	-210.24	26.68
P4, P40, P76, P112, P148, P184	7.5	-201.91	8.66	-6.58	-186.76	-213.43	26.68
P4, P40, P76, P112, P148, P184	7.75	-205.10	8.66	-6.58	-189.94	-216.62	26.68
P4, P40, P76, P112, P148, P184	8	-208.28	8.66	-6.58	-193.13	-219.81	26.68
P4, P40, P76, P112, P148, P184	8.25	-211.47	8.66	-6.58	-196.32	-222.99	26.68
P4, P40, P76, P112, P148, P184	8.5	-214.66	8.66	-6.58	-199.51	-226.18	26.68
P5, P41, P77, P113, P149, P185	8.75	577.16	36.12	-3.21	640.37	571.54	68.84
P5, P41, P77, P113, P149, P185	9	573.97	36.12	-3.21	637.19	568.35	68.84
P5, P41, P77, P113, P149, P185	9.25	570.78	36.12	-3.21	634.00	565.16	68.84
P5, P41, P77, P113, P149, P185	9.5	567.59	36.12	-3.21	630.81	561.97	68.84
P5, P41, P77, P113, P149, P185	9.75	564.41	36.12	-3.21	627.62	558.79	68.84
P5, P41, P77, P113, P149, P185	10	561.22	36.12	-3.21	624.44	555.60	68.84
P5, P41, P77, P113, P149, P185	10.25	558.03	36.12	-3.21	621.25	552.41	68.84
P5, P41, P77, P113, P149, P185	10.5	554.84	36.12	-3.21	618.06	549.22	68.84
P5, P41, P77, P113, P149, P185	10.75	551.66	36.12	-3.21	614.87	546.04	68.84
P5, P41, P77, P113, P149, P185	11	548.47	36.12	-3.21	611.69	542.85	68.84
P5, P41, P77, P113, P149, P185	11.25	545.28	36.12	-3.21	608.50	539.66	68.84
P5, P41, P77, P113, P149, P185	11.5	542.09	36.12	-3.21	605.31	536.47	68.84

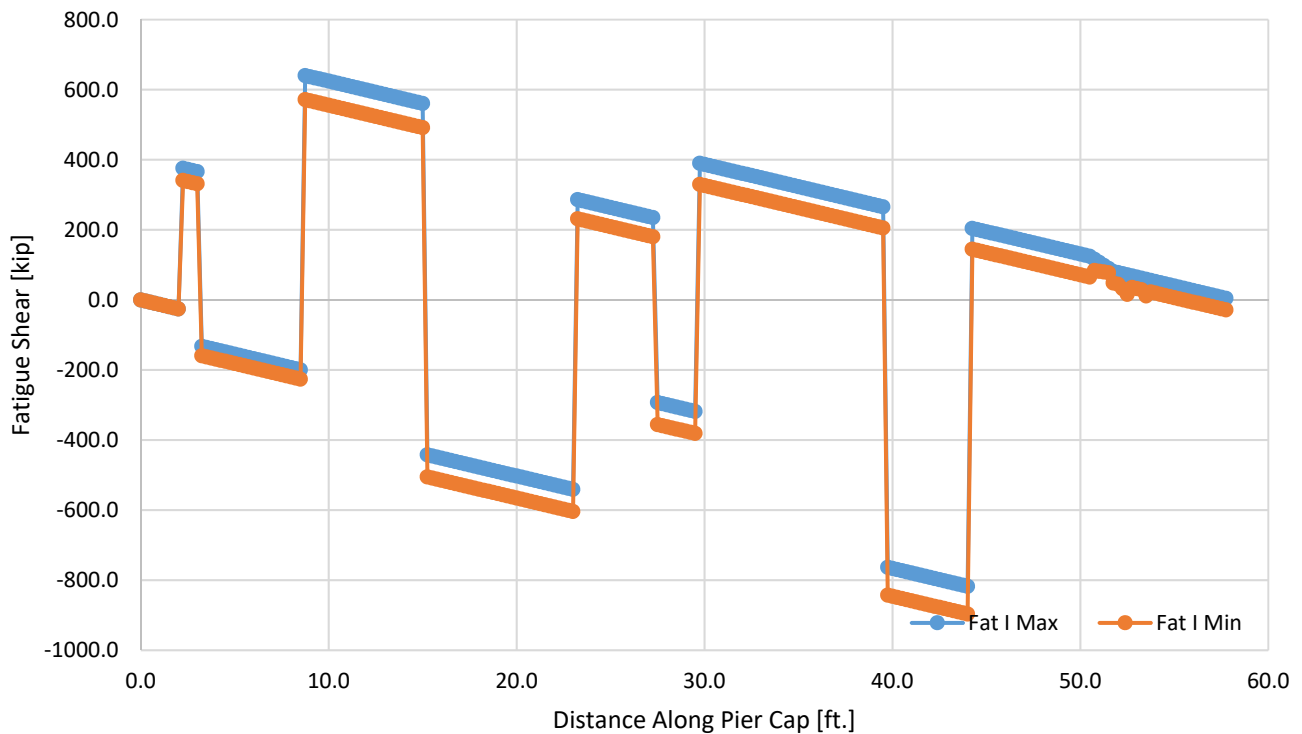
P5, P41, P77, P113, P149, P185	11.75	538.91	36.12	-3.21	602.12	533.28	68.84
P6, P42, P78, P114, P150, P186	12	535.72	36.12	-3.21	598.93	530.10	68.84
P6, P42, P78, P114, P150, P186	12.25	532.53	36.12	-3.21	595.75	526.91	68.84
P6, P42, P78, P114, P150, P186	12.5	529.34	36.12	-3.21	592.56	523.72	68.84
P6, P42, P78, P114, P150, P186	12.75	526.15	36.12	-3.21	589.37	520.53	68.84
P6, P42, P78, P114, P150, P186	13	522.97	36.12	-3.21	586.18	517.35	68.84
P6, P42, P78, P114, P150, P186	13.25	519.78	36.12	-3.21	583.00	514.16	68.84
P6, P42, P78, P114, P150, P186	13.5	516.59	36.12	-3.21	579.81	510.97	68.84
P6, P42, P78, P114, P150, P186	13.75	513.40	36.12	-3.21	576.62	507.78	68.84
P6, P42, P78, P114, P150, P186	14	510.22	36.12	-3.21	573.43	504.60	68.84
P6, P42, P78, P114, P150, P186	14.25	507.03	36.12	-3.21	570.25	501.41	68.84
P6, P42, P78, P114, P150, P186	14.5	503.84	36.12	-3.21	567.06	498.22	68.84
P6, P42, P78, P114, P150, P186	14.75	500.65	36.12	-3.21	563.87	495.03	68.84
P6, P42, P78, P114, P150, P186	15	497.47	36.12	-3.21	560.68	491.84	68.84
P7, P43, P79, P115, P151, P187	15.25	-449.22	4.10	-31.88	-442.04	-505.01	62.97
P7, P43, P79, P115, P151, P187	15.5	-452.41	4.10	-31.88	-445.23	-508.19	62.97
P7, P43, P79, P115, P151, P187	15.75	-455.60	4.10	-31.88	-448.41	-511.38	62.97
P7, P43, P79, P115, P151, P187	16	-458.78	4.10	-31.88	-451.60	-514.57	62.97
P7, P43, P79, P115, P151, P187	16.25	-461.97	4.10	-31.88	-454.79	-517.76	62.97
P7, P43, P79, P115, P151, P187	16.5	-465.16	4.10	-31.88	-457.98	-520.94	62.97
P7, P43, P79, P115, P151, P187	16.75	-468.35	4.10	-31.88	-461.16	-524.13	62.97
P7, P43, P79, P115, P151, P187	17	-471.54	4.10	-31.88	-464.35	-527.32	62.97
P7, P43, P79, P115, P151, P187	17.25	-474.72	4.10	-31.88	-467.54	-530.51	62.97
P7, P43, P79, P115, P151, P187	17.5	-477.91	4.10	-31.88	-470.73	-533.69	62.97
P7, P43, P79, P115, P151, P187	17.75	-481.10	4.10	-31.88	-473.92	-536.88	62.97
P7, P43, P79, P115, P151, P187	18	-484.29	4.10	-31.88	-477.10	-540.07	62.97
P7, P43, P79, P115, P151, P187	18.25	-487.47	4.10	-31.88	-480.29	-543.26	62.97
P7, P43, P79, P115, P151, P187	18.5	-490.66	4.10	-31.88	-483.48	-546.44	62.97
P7, P43, P79, P115, P151, P187	18.75	-493.85	4.10	-31.88	-486.67	-549.63	62.97
P7, P43, P79, P115, P151, P187	19	-497.04	4.10	-31.88	-489.85	-552.82	62.97
P8, P44, P80, P116, P152, P188	19.25	-500.22	4.10	-31.88	-493.04	-556.01	62.97
P8, P44, P80, P116, P152, P188	19.5	-503.41	4.10	-31.88	-496.23	-559.20	62.97
P8, P44, P80, P116, P152, P188	19.75	-506.60	4.10	-31.88	-499.42	-562.38	62.97
P8, P44, P80, P116, P152, P188	20	-509.79	4.10	-31.88	-502.60	-565.57	62.97
P8, P44, P80, P116, P152, P188	20.25	-512.98	4.10	-31.88	-505.79	-568.76	62.97
P8, P44, P80, P116, P152, P188	20.5	-516.16	4.10	-31.88	-508.98	-571.95	62.97
P8, P44, P80, P116, P152, P188	20.75	-519.35	4.10	-31.88	-512.17	-575.13	62.97
P8, P44, P80, P116, P152, P188	21	-522.54	4.10	-31.88	-515.36	-578.32	62.97
P8, P44, P80, P116, P152, P188	21.25	-525.73	4.10	-31.88	-518.54	-581.51	62.97
P8, P44, P80, P116, P152, P188	21.5	-528.91	4.10	-31.88	-521.73	-584.70	62.97
P8, P44, P80, P116, P152, P188	21.75	-532.10	4.10	-31.88	-524.92	-587.88	62.97
P8, P44, P80, P116, P152, P188	22	-535.29	4.10	-31.88	-528.11	-591.07	62.97
P8, P44, P80, P116, P152, P188	22.25	-538.48	4.10	-31.88	-531.29	-594.26	62.97
P8, P44, P80, P116, P152, P188	22.5	-541.66	4.10	-31.88	-534.48	-597.45	62.97
P8, P44, P80, P116, P152, P188	22.75	-544.85	4.10	-31.88	-537.67	-600.64	62.97
P8, P44, P80, P116, P152, P188	23	-548.04	4.10	-31.88	-540.86	-603.82	62.97
P9, P45, P81, P117, P153, P189	23.25	245.79	23.08	-8.31	286.18	231.25	54.94
P9, P45, P81, P117, P153, P189	23.5	242.60	23.08	-8.31	283.00	228.06	54.94
P9, P45, P81, P117, P153, P189	23.75	239.41	23.08	-8.31	279.81	224.87	54.94
P9, P45, P81, P117, P153, P189	24	236.23	23.08	-8.31	276.62	221.68	54.94
P9, P45, P81, P117, P153, P189	24.25	233.04	23.08	-8.31	273.43	218.49	54.94
P9, P45, P81, P117, P153, P189	24.5	229.85	23.08	-8.31	270.25	215.31	54.94
P9, P45, P81, P117, P153, P189	24.75	226.66	23.08	-8.31	267.06	212.12	54.94
P9, P45, P81, P117, P153, P189	25	223.47	23.08	-8.31	263.87	208.93	54.94
P9, P45, P81, P117, P153, P189	25.25	220.29	23.08	-8.31	260.68	205.74	54.94
P9, P45, P81, P117, P153, P189	25.5	217.10	23.08	-8.31	257.49	202.56	54.94
P9, P45, P81, P117, P153, P189	25.75	213.91	23.08	-8.31	254.31	199.37	54.94
P9, P45, P81, P117, P153, P189	26	210.72	23.08	-8.31	251.12	196.18	54.94
P9, P45, P81, P117, P153, P189	26.25	207.54	23.08	-8.31	247.93	192.99	54.94

P10, P46, P82, P118, P154, P190	26.5	204.35	23.08	-8.31	244.74	189.81	54.94
P10, P46, P82, P118, P154, P190	26.75	201.16	23.08	-8.31	241.56	186.62	54.94
P10, P46, P82, P118, P154, P190	27	197.97	23.08	-8.31	238.37	183.43	54.94
P10, P46, P82, P118, P154, P190	27.25	194.79	23.08	-8.31	235.18	180.24	54.94
P11, P47, P83, P119, P155, P191	27.5	-308.91	9.17	-26.68	-292.87	-355.61	62.73
P11, P47, P83, P119, P155, P191	27.75	-312.10	9.17	-26.68	-296.06	-358.80	62.73
P11, P47, P83, P119, P155, P191	28	-315.29	9.17	-26.68	-299.25	-361.98	62.73
P11, P47, P83, P119, P155, P191	28.25	-318.48	9.17	-26.68	-302.44	-365.17	62.73
P11, P47, P83, P119, P155, P191	28.5	-321.66	9.17	-26.68	-305.62	-368.36	62.73
P11, P47, P83, P119, P155, P191	28.75	-324.85	9.17	-26.68	-308.81	-371.55	62.73
P11, P47, P83, P119, P155, P191	29	-328.04	9.17	-26.68	-312.00	-374.73	62.73
P11, P47, P83, P119, P155, P191	29.25	-331.23	9.17	-26.68	-315.19	-377.92	62.73
P11, P47, P83, P119, P155, P191	29.5	-334.41	9.17	-26.68	-318.37	-381.11	62.73
P12, P48, P84, P120, P156, P192	29.75	345.91	25.23	-9.22	390.06	329.78	60.28
P12, P48, P84, P120, P156, P192	30	342.72	25.23	-9.22	386.87	326.60	60.28
P12, P48, P84, P120, P156, P192	30.25	339.54	25.23	-9.22	383.68	323.41	60.28
P12, P48, P84, P120, P156, P192	30.5	336.35	25.23	-9.22	380.50	320.22	60.28
P12, P48, P84, P120, P156, P192	30.75	333.16	25.23	-9.22	377.31	317.03	60.28
P12, P48, P84, P120, P156, P192	31	329.97	25.23	-9.22	374.12	313.85	60.28
P12, P48, P84, P120, P156, P192	31.25	326.79	25.23	-9.22	370.93	310.66	60.28
P12, P48, P84, P120, P156, P192	31.5	323.60	25.23	-9.22	367.75	307.47	60.28
P12, P48, P84, P120, P156, P192	31.75	320.41	25.23	-9.22	364.56	304.28	60.28
P12, P48, P84, P120, P156, P192	32	317.22	25.23	-9.22	361.37	301.09	60.28
P12, P48, P84, P120, P156, P192	32.25	314.04	25.23	-9.22	358.18	297.91	60.28
P12, P48, P84, P120, P156, P192	32.5	310.85	25.23	-9.22	355.00	294.72	60.28
P12, P48, P84, P120, P156, P192	32.75	307.66	25.23	-9.22	351.81	291.53	60.28
P12, P48, P84, P120, P156, P192	33	304.47	25.23	-9.22	348.62	288.34	60.28
P12, P48, P84, P120, P156, P192	33.25	301.29	25.23	-9.22	345.43	285.16	60.28
P12, P48, P84, P120, P156, P192	33.5	298.10	25.23	-9.22	342.24	281.97	60.28
P12, P48, P84, P120, P156, P192	33.75	294.91	25.23	-9.22	339.06	278.78	60.28
P12, P48, P84, P120, P156, P192	34	291.72	25.23	-9.22	335.87	275.59	60.28
P12, P48, P84, P120, P156, P192	34.25	288.53	25.23	-9.22	332.68	272.41	60.28
P12, P48, P84, P120, P156, P192	34.5	285.35	25.23	-9.22	329.49	269.22	60.28
P13, P49, P85, P121, P157, P193	34.75	282.16	25.23	-9.22	326.31	266.03	60.28
P13, P49, P85, P121, P157, P193	35	278.97	25.23	-9.22	323.12	262.84	60.28
P13, P49, P85, P121, P157, P193	35.25	275.78	25.23	-9.22	319.93	259.65	60.28
P13, P49, P85, P121, P157, P193	35.5	272.60	25.23	-9.22	316.74	256.47	60.28
P13, P49, P85, P121, P157, P193	35.75	269.41	25.23	-9.22	313.56	253.28	60.28
P13, P49, P85, P121, P157, P193	36	266.22	25.23	-9.22	310.37	250.09	60.28
P13, P49, P85, P121, P157, P193	36.25	263.03	25.23	-9.22	307.18	246.90	60.28
P13, P49, P85, P121, P157, P193	36.5	259.85	25.23	-9.22	303.99	243.72	60.28
P13, P49, P85, P121, P157, P193	36.75	256.66	25.23	-9.22	300.80	240.53	60.28
P13, P49, P85, P121, P157, P193	37	253.47	25.23	-9.22	297.62	237.34	60.28
P13, P49, P85, P121, P157, P193	37.25	250.28	25.23	-9.22	294.43	234.15	60.28
P13, P49, P85, P121, P157, P193	37.5	247.09	25.23	-9.22	291.24	230.97	60.28
P13, P49, P85, P121, P157, P193	37.75	243.91	25.23	-9.22	288.05	227.78	60.28
P13, P49, P85, P121, P157, P193	38	240.72	25.23	-9.22	284.87	224.59	60.28
P13, P49, P85, P121, P157, P193	38.25	237.53	25.23	-9.22	281.68	221.40	60.28
P13, P49, P85, P121, P157, P193	38.5	234.34	25.23	-9.22	278.49	218.22	60.28
P13, P49, P85, P121, P157, P193	38.75	231.16	25.23	-9.22	275.30	215.03	60.28
P13, P49, P85, P121, P157, P193	39	227.97	25.23	-9.22	272.12	211.84	60.28
P13, P49, P85, P121, P157, P193	39.25	224.78	25.23	-9.22	268.93	208.65	60.28
P13, P49, P85, P121, P157, P193	39.5	221.59	25.23	-9.22	265.74	205.46	60.28
P14, P50, P86, P122, P158, P194	39.75	-767.59	2.53	-42.77	-763.17	-842.45	79.28
P14, P50, P86, P122, P158, P194	40	-770.78	2.53	-42.77	-766.35	-845.63	79.28
P14, P50, P86, P122, P158, P194	40.25	-773.97	2.53	-42.77	-769.54	-848.82	79.28
P14, P50, P86, P122, P158, P194	40.5	-777.16	2.53	-42.77	-772.73	-852.01	79.28
P14, P50, P86, P122, P158, P194	40.75	-780.34	2.53	-42.77	-775.92	-855.20	79.28
P14, P50, P86, P122, P158, P194	41	-783.53	2.53	-42.77	-779.11	-858.39	79.28

P14, P50, P86, P122, P158, P194	41.25	-786.72	2.53	-42.77	-782.29	-861.57	79.28
P14, P50, P86, P122, P158, P194	41.5	-789.91	2.53	-42.77	-785.48	-864.76	79.28
P14, P50, P86, P122, P158, P194	41.75	-793.10	2.53	-42.77	-788.67	-867.95	79.28
P14, P50, P86, P122, P158, P194	42	-796.28	2.53	-42.77	-791.86	-871.14	79.28
P14, P50, P86, P122, P158, P194	42.25	-799.47	2.53	-42.77	-795.04	-874.32	79.28
P14, P50, P86, P122, P158, P194	42.5	-802.66	2.53	-42.77	-798.23	-877.51	79.28
P14, P50, P86, P122, P158, P194	42.75	-805.85	2.53	-42.77	-801.42	-880.70	79.28
P14, P50, P86, P122, P158, P194	43	-809.03	2.53	-42.77	-804.61	-883.89	79.28
P14, P50, P86, P122, P158, P194	43.25	-812.22	2.53	-42.77	-807.79	-887.07	79.28
P14, P50, P86, P122, P158, P194	43.5	-815.41	2.53	-42.77	-810.98	-890.26	79.28
P14, P50, P86, P122, P158, P194	43.75	-818.60	2.53	-42.77	-814.17	-893.45	79.28
P14, P50, P86, P122, P158, P194	44	-821.78	2.53	-42.77	-817.36	-896.64	79.28
P15, P51, P87, P123, P159, P195	44.25	167.43	21.04	-12.89	204.25	144.87	59.38
P15, P51, P87, P123, P159, P195	44.5	164.25	21.04	-12.89	201.07	141.69	59.38
P15, P51, P87, P123, P159, P195	44.75	161.06	21.04	-12.89	197.88	138.50	59.38
P15, P51, P87, P123, P159, P195	45	157.87	21.04	-12.89	194.69	135.31	59.38
P15, P51, P87, P123, P159, P195	45.25	154.68	21.04	-12.89	191.50	132.12	59.38
P15, P51, P87, P123, P159, P195	45.5	151.50	21.04	-12.89	188.32	128.94	59.38
P15, P51, P87, P123, P159, P195	45.75	148.31	21.04	-12.89	185.13	125.75	59.38
P15, P51, P87, P123, P159, P195	46	145.12	21.04	-12.89	181.94	122.56	59.38
P15, P51, P87, P123, P159, P195	46.25	141.93	21.04	-12.89	178.75	119.37	59.38
P15, P51, P87, P123, P159, P195	46.5	138.75	21.04	-12.89	175.57	116.18	59.38
P15, P51, P87, P123, P159, P195	46.75	135.56	21.04	-12.89	172.38	113.00	59.38
P15, P51, P87, P123, P159, P195	47	132.37	21.04	-12.89	169.19	109.81	59.38
P15, P51, P87, P123, P159, P195	47.25	129.18	21.04	-12.89	166.00	106.62	59.38
P16, P52, P88, P124, P160, P196	47.5	126.00	21.04	-12.89	162.81	103.43	59.38
P16, P52, P88, P124, P160, P196	47.75	122.81	21.04	-12.89	159.63	100.25	59.38
P16, P52, P88, P124, P160, P196	48	119.62	21.04	-12.89	156.44	97.06	59.38
P16, P52, P88, P124, P160, P196	48.25	116.43	21.04	-12.89	153.25	93.87	59.38
P16, P52, P88, P124, P160, P196	48.5	113.24	21.04	-12.89	150.06	90.68	59.38
P16, P52, P88, P124, P160, P196	48.75	110.06	21.04	-12.89	146.88	87.50	59.38
P16, P52, P88, P124, P160, P196	49	106.87	21.04	-12.89	143.69	84.31	59.38
P16, P52, P88, P124, P160, P196	49.25	103.68	21.04	-12.89	140.50	81.12	59.38
P16, P52, P88, P124, P160, P196	49.5	100.49	21.04	-12.89	137.31	77.93	59.38
P16, P52, P88, P124, P160, P196	49.75	97.31	21.04	-12.89	134.13	74.75	59.38
P16, P52, P88, P124, P160, P196	50	94.12	21.04	-12.89	130.94	71.56	59.38
P16, P52, P88, P124, P160, P196	50.25	90.93	21.04	-12.89	127.75	68.37	59.38
P16, P52, P88, P124, P160, P196	50.5	87.74	21.04	-12.89	124.56	65.18	59.38
P17, P53, P89, P125, P161, P197, P217	50.75	85.52	17.37	-0.84	115.92	84.04	31.87
P17, P53, P89, P125, P161, P197, P217	51	83.29	13.70	-0.81	107.27	81.89	25.39
P17, P53, P89, P125, P161, P197, P217	51.25	81.07	10.03	-0.81	98.63	79.66	18.97
P17, P53, P89, P125, P161, P197, P217	51.5	78.84	6.36	-0.80	89.98	77.44	12.54
P17, P53, P89, P125, P161, P197	51.75	76.62	2.69	-16.15	81.33	48.36	32.98
P17, P53, P89, P125, P161, P197	52	73.40	2.70	-16.43	78.12	44.65	33.48
P17, P53, P89, P125, P161, P197	52.25	70.18	2.70	-21.80	74.90	32.03	42.87
P17, P53, P89, P125, P161, P197	52.5	66.96	2.70	-29.19	71.68	15.87	55.81
P17, P53, P89, P125, P161, P197	52.75	63.74	2.69	-16.15	68.45	35.47	32.98
P17, P53, P89, P125, P161, P197	53	60.51	2.69	-16.15	65.23	32.25	32.98
P17, P53, P89, P125, P161, P197	53.25	57.29	2.69	-16.15	62.01	29.03	32.98
P17, P53, P89, P125, P161, P197	53.5	54.07	2.70	-24.42	58.80	11.34	47.46
P17, P53, P89, P125, P161, P197	53.75	50.85	2.69	-16.15	55.56	22.59	32.98
P17, P53, P89, P125, P161, P197	54	47.63	2.69	-16.15	52.34	19.37	32.98
P17, P53, P89, P125, P161, P197	54.25	44.41	2.69	-16.15	49.12	16.15	32.98
P17, P53, P89, P125, P161, P197	54.5	41.19	2.69	-16.15	45.90	12.92	32.98
P18, P54, P90, P126, P162, P198	54.75	37.97	2.69	-16.15	42.69	9.71	32.98
P18, P54, P90, P126, P162, P198	55	34.78	2.69	-16.15	39.50	6.52	32.98
P18, P54, P90, P126, P162, P198	55.25	31.60	2.69	-16.15	36.31	3.33	32.98
P18, P54, P90, P126, P162, P198	55.5	28.41	2.69	-16.15	33.12	0.15	32.98
P18, P54, P90, P126, P162, P198	55.75	25.22	2.69	-16.15	29.93	-3.04	32.98

P18, P54, P90, P126, P162, P198	56	22.03	2.69	-16.15	26.75	-6.23	32.98
P18, P54, P90, P126, P162, P198	56.25	18.85	2.69	-16.15	23.56	-9.42	32.98
P18, P54, P90, P126, P162, P198	56.5	15.66	2.69	-16.15	20.37	-12.60	32.98
P18, P54, P90, P126, P162, P198	56.75	12.47	2.69	-16.15	17.18	-15.79	32.98
P18, P54, P90, P126, P162, P198	57	9.28	2.69	-16.15	14.00	-18.98	32.98
P18, P54, P90, P126, P162, P198	57.25	6.10	2.69	-16.15	10.81	-22.17	32.98
P18, P54, P90, P126, P162, P198	57.5	2.91	2.69	-16.15	7.62	-25.36	32.98
P18, P54, P90, P126, P162, P198	57.75	-0.28	2.69	-16.15	4.43	-28.54	32.98

Fatigue I Loads



Determine fatigue resistance per AASHTO 5.5.3

Resistance Factor, Φ 0.75 [✓]

Use a resistance factor as recommended by attached reference.

$$(\Delta F)_{TH} = 26 - \frac{22 f_{min}}{f_y}$$

Elements	X [ft.]	Fatigue I [ksi]						
		MAX	MIN	FsVert	FsInter	FsTot	$\Phi \Delta F_{TH}$	DC
P1, P37, P73, P109, P145, P181	0	0.00	0.00	0.00	0.00	0.00	19.50	0.00
P1, P37, P73, P109, P145, P181	0.25	0.15	0.15	0.00	0.00	0.00	19.46	0.00
P1, P37, P73, P109, P145, P181	0.5	0.30	0.30	0.00	0.00	0.00	19.42	0.00
P1, P37, P73, P109, P145, P181	0.75	0.45	0.45	0.00	0.00	0.00	19.38	0.00
P1, P37, P73, P109, P145, P181	1	0.60	0.60	0.00	0.00	0.00	19.34	0.00
P1, P37, P73, P109, P145, P181	1.25	0.75	0.75	0.00	0.00	0.00	19.29	0.00
P1, P37, P73, P109, P145, P181	1.5	0.90	0.90	0.00	0.00	0.00	19.25	0.00
P1, P37, P73, P109, P145, P181	1.75	1.05	1.05	0.00	0.00	0.00	19.21	0.00
P1, P37, P73, P109, P145, P181	2	1.19	1.19	0.00	0.12	0.12	19.17	0.01
P2, P38, P74, P110, P146, P182	2.25	17.61	15.98	1.62	0.12	1.75	14.66	0.12
P2, P38, P74, P110, P146, P182	2.5	17.46	15.83	1.62	0.12	1.75	14.70	0.12
P2, P38, P74, P110, P146, P182	2.75	17.31	15.68	1.62	0.12	1.75	14.74	0.12
P2, P38, P74, P110, P146, P182	3	17.16	15.53	1.62	0.12	1.75	14.78	0.12
P3, P39, P75, P111, P147, P183	3.25	6.21	7.46	1.25	0.12	1.37	17.45	0.08
P3, P39, P75, P111, P147, P183	3.5	6.36	7.61	1.25	0.12	1.37	17.41	0.08
P3, P39, P75, P111, P147, P183	3.75	6.51	7.76	1.25	0.12	1.37	17.37	0.08
P3, P39, P75, P111, P147, P183	4	6.66	7.91	1.25	0.12	1.37	17.33	0.08
P3, P39, P75, P111, P147, P183	4.25	6.81	8.06	1.25	0.12	1.37	17.28	0.08
P3, P39, P75, P111, P147, P183	4.5	6.96	8.21	1.25	0.12	1.37	17.24	0.08
P3, P39, P75, P111, P147, P183	4.75	7.10	8.35	1.25	0.12	1.37	17.20	0.08
P3, P39, P75, P111, P147, P183	5	7.25	8.50	1.25	0.12	1.37	17.16	0.08
P3, P39, P75, P111, P147, P183	5.25	7.40	8.65	1.25	0.28	1.53	17.12	0.09
P4, P40, P76, P112, P148, P184	5.5	7.55	8.80	1.25	0.28	1.53	17.08	0.09
P4, P40, P76, P112, P148, P184	5.75	7.70	8.95	1.25	0.28	1.53	17.04	0.09
P4, P40, P76, P112, P148, P184	6	7.85	9.10	1.25	0.28	1.53	17.00	0.09
P4, P40, P76, P112, P148, P184	6.25	8.00	9.25	1.25	0.28	1.53	16.96	0.09
P4, P40, P76, P112, P148, P184	6.5	8.15	9.40	1.25	0.28	1.53	16.92	0.09
P4, P40, P76, P112, P148, P184	6.75	8.30	9.55	1.25	0.28	1.53	16.87	0.09
P4, P40, P76, P112, P148, P184	7	8.45	9.70	1.25	0.28	1.53	16.83	0.09
P4, P40, P76, P112, P148, P184	7.25	8.60	9.85	1.25	0.28	1.53	16.79	0.09
P4, P40, P76, P112, P148, P184	7.5	8.75	10.00	1.25	0.28	1.53	16.75	0.09
P4, P40, P76, P112, P148, P184	7.75	8.90	10.15	1.25	0.28	1.53	16.71	0.09
P4, P40, P76, P112, P148, P184	8	9.05	10.30	1.25	0.28	1.53	16.67	0.09
P4, P40, P76, P112, P148, P184	8.25	9.20	10.44	1.25	0.28	1.53	16.63	0.09
P4, P40, P76, P112, P148, P184	8.5	9.34	10.59	1.25	0.52	1.77	16.59	0.11
P5, P41, P77, P113, P149, P185	8.75	29.99	26.77	3.22	0.52	3.74	11.25	0.33
P5, P41, P77, P113, P149, P185	9	29.84	26.62	3.22	0.52	3.74	11.29	0.33
P5, P41, P77, P113, P149, P185	9.25	29.70	26.47	3.22	0.52	3.74	11.33	0.33
P5, P41, P77, P113, P149, P185	9.5	29.55	26.32	3.22	0.52	3.74	11.37	0.33
P5, P41, P77, P113, P149, P185	9.75	29.40	26.17	3.22	0.52	3.74	11.42	0.33
P5, P41, P77, P113, P149, P185	10	29.25	26.02	3.22	0.52	3.74	11.46	0.33
P5, P41, P77, P113, P149, P185	10.25	29.10	25.87	3.22	0.52	3.74	11.50	0.33
P5, P41, P77, P113, P149, P185	10.5	28.95	25.72	3.22	0.52	3.74	11.54	0.32
P5, P41, P77, P113, P149, P185	10.75	28.80	25.58	3.22	0.52	3.74	11.58	0.32
P5, P41, P77, P113, P149, P185	11	28.65	25.43	3.22	0.52	3.74	11.62	0.32
P5, P41, P77, P113, P149, P185	11.25	28.50	25.28	3.22	0.52	3.74	11.66	0.32
P5, P41, P77, P113, P149, P185	11.5	28.35	25.13	3.22	0.52	3.74	11.70	0.32
P5, P41, P77, P113, P149, P185	11.75	28.20	24.98	3.22	0.52	3.74	11.74	0.32
P6, P42, P78, P114, P150, P186	12	28.05	24.83	3.22	1.18	4.41	11.79	0.37
P6, P42, P78, P114, P150, P186	12.25	27.90	24.68	3.22	1.18	4.41	11.83	0.37

P6, P42, P78, P114, P150, P186	12.5	27.75	24.53	3.22	1.18	4.41	11.87	0.37
P6, P42, P78, P114, P150, P186	12.75	27.60	24.38	3.22	1.18	4.41	11.91	0.37
P6, P42, P78, P114, P150, P186	13	27.46	24.23	3.22	1.18	4.41	11.95	0.37
P6, P42, P78, P114, P150, P186	13.25	27.31	24.08	3.22	1.18	4.41	11.99	0.37
P6, P42, P78, P114, P150, P186	13.5	27.16	23.93	3.22	1.18	4.41	12.03	0.37
P6, P42, P78, P114, P150, P186	13.75	27.01	23.78	3.22	1.18	4.41	12.07	0.36
P6, P42, P78, P114, P150, P186	14	26.86	23.63	3.22	1.18	4.41	12.11	0.36
P6, P42, P78, P114, P150, P186	14.25	26.71	23.48	3.22	1.18	4.41	12.16	0.36
P6, P42, P78, P114, P150, P186	14.5	26.56	23.34	3.22	1.18	4.41	12.20	0.36
P6, P42, P78, P114, P150, P186	14.75	26.41	23.19	3.22	1.18	4.41	12.24	0.36
P6, P42, P78, P114, P150, P186	15	26.26	23.04	3.22	1.18	4.41	12.28	0.36
P7, P43, P79, P115, P151, P187	15.25	20.70	23.65	2.95	1.18	4.13	13.00	0.32
P7, P43, P79, P115, P151, P187	15.5	20.85	23.80	2.95	1.18	4.13	12.95	0.32
P7, P43, P79, P115, P151, P187	15.75	21.00	23.95	2.95	1.18	4.13	12.91	0.32
P7, P43, P79, P115, P151, P187	16	21.15	24.10	2.95	1.18	4.13	12.87	0.32
P7, P43, P79, P115, P151, P187	16.25	21.30	24.25	2.95	1.18	4.13	12.83	0.32
P7, P43, P79, P115, P151, P187	16.5	21.45	24.40	2.95	1.18	4.13	12.79	0.32
P7, P43, P79, P115, P151, P187	16.75	21.60	24.55	2.95	1.18	4.13	12.75	0.32
P7, P43, P79, P115, P151, P187	17	21.75	24.70	2.95	1.18	4.13	12.71	0.33
P7, P43, P79, P115, P151, P187	17.25	21.90	24.85	2.95	1.18	4.13	12.67	0.33
P7, P43, P79, P115, P151, P187	17.5	22.05	25.00	2.95	1.18	4.13	12.63	0.33
P7, P43, P79, P115, P151, P187	17.75	22.20	25.15	2.95	1.18	4.13	12.58	0.33
P7, P43, P79, P115, P151, P187	18	22.35	25.30	2.95	1.18	4.13	12.54	0.33
P7, P43, P79, P115, P151, P187	18.25	22.50	25.44	2.95	1.18	4.13	12.50	0.33
P7, P43, P79, P115, P151, P187	18.5	22.65	25.59	2.95	1.18	4.13	12.46	0.33
P7, P43, P79, P115, P151, P187	18.75	22.79	25.74	2.95	1.18	4.13	12.42	0.33
P7, P43, P79, P115, P151, P187	19	22.94	25.89	2.95	1.18	4.13	12.38	0.33
P8, P44, P80, P116, P152, P188	19.25	23.09	26.04	2.95	1.28	4.23	12.34	0.34
P8, P44, P80, P116, P152, P188	19.5	23.24	26.19	2.95	1.28	4.23	12.30	0.34
P8, P44, P80, P116, P152, P188	19.75	23.39	26.34	2.95	1.28	4.23	12.26	0.35
P8, P44, P80, P116, P152, P188	20	23.54	26.49	2.95	1.28	4.23	12.22	0.35
P8, P44, P80, P116, P152, P188	20.25	23.69	26.64	2.95	1.28	4.23	12.17	0.35
P8, P44, P80, P116, P152, P188	20.5	23.84	26.79	2.95	1.28	4.23	12.13	0.35
P8, P44, P80, P116, P152, P188	20.75	23.99	26.94	2.95	1.28	4.23	12.09	0.35
P8, P44, P80, P116, P152, P188	21	24.14	27.09	2.95	1.28	4.23	12.05	0.35
P8, P44, P80, P116, P152, P188	21.25	24.29	27.24	2.95	1.28	4.23	12.01	0.35
P8, P44, P80, P116, P152, P188	21.5	24.44	27.39	2.95	1.28	4.23	11.97	0.35
P8, P44, P80, P116, P152, P188	21.75	24.59	27.54	2.95	1.28	4.23	11.93	0.35
P8, P44, P80, P116, P152, P188	22	24.74	27.68	2.95	1.28	4.23	11.89	0.36
P8, P44, P80, P116, P152, P188	22.25	24.88	27.83	2.95	1.28	4.23	11.85	0.36
P8, P44, P80, P116, P152, P188	22.5	25.03	27.98	2.95	1.28	4.23	11.80	0.36
P8, P44, P80, P116, P152, P188	22.75	25.18	28.13	2.95	1.28	4.23	11.76	0.36
P8, P44, P80, P116, P152, P188	23	25.33	28.28	2.95	1.55	4.50	11.72	0.38
P9, P45, P81, P117, P153, P189	23.25	13.40	10.83	2.57	1.55	4.13	15.81	0.26
P9, P45, P81, P117, P153, P189	23.5	13.25	10.68	2.57	1.55	4.13	15.85	0.26
P9, P45, P81, P117, P153, P189	23.75	13.11	10.53	2.57	1.55	4.13	15.90	0.26
P9, P45, P81, P117, P153, P189	24	12.96	10.38	2.57	1.55	4.13	15.94	0.26
P9, P45, P81, P117, P153, P189	24.25	12.81	10.23	2.57	1.55	4.13	15.98	0.26
P9, P45, P81, P117, P153, P189	24.5	12.66	10.08	2.57	1.55	4.13	16.02	0.26
P9, P45, P81, P117, P153, P189	24.75	12.51	9.94	2.57	1.55	4.13	16.06	0.26
P9, P45, P81, P117, P153, P189	25	12.36	9.79	2.57	1.55	4.13	16.10	0.26
P9, P45, P81, P117, P153, P189	25.25	12.21	9.64	2.57	1.55	4.13	16.14	0.26
P9, P45, P81, P117, P153, P189	25.5	12.06	9.49	2.57	1.55	4.13	16.18	0.25
P9, P45, P81, P117, P153, P189	25.75	11.91	9.34	2.57	1.55	4.13	16.22	0.25
P9, P45, P81, P117, P153, P189	26	11.76	9.19	2.57	1.55	4.13	16.27	0.25
P9, P45, P81, P117, P153, P189	26.25	11.61	9.04	2.57	1.55	4.13	16.31	0.25
P10, P46, P82, P118, P154, P190	26.5	11.46	8.89	2.57	1.55	4.13	16.35	0.25
P10, P46, P82, P118, P154, P190	26.75	11.31	8.74	2.57	1.55	4.13	16.39	0.25
P10, P46, P82, P118, P154, P190	27	11.16	8.59	2.57	1.55	4.13	16.43	0.25

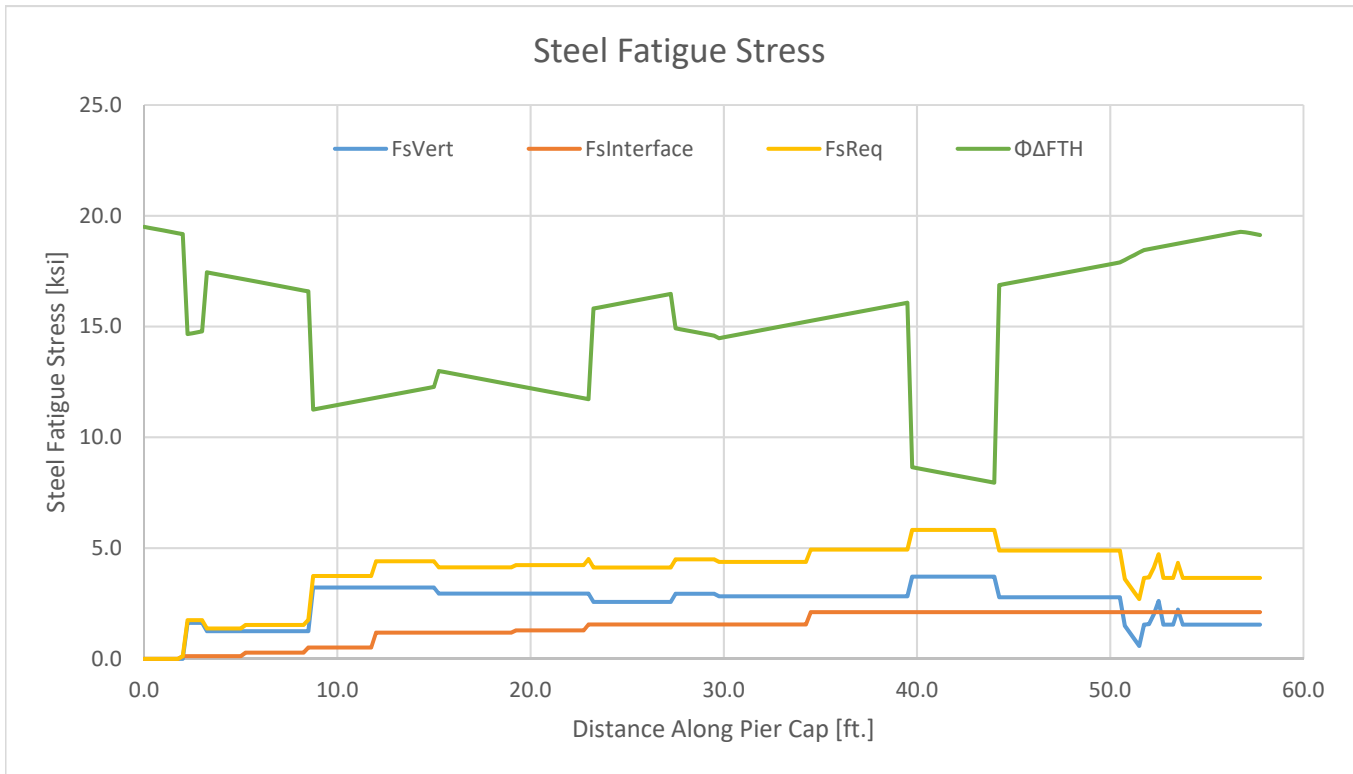
P10, P46, P82, P118, P154, P190	27.25	11.02	8.44	2.57	1.55	4.13	16.47	0.25
P11, P47, P83, P119, P155, P191	27.5	13.72	16.66	2.94	1.55	4.49	14.92	0.30
P11, P47, P83, P119, P155, P191	27.75	13.87	16.81	2.94	1.55	4.49	14.88	0.30
P11, P47, P83, P119, P155, P191	28	14.02	16.95	2.94	1.55	4.49	14.84	0.30
P11, P47, P83, P119, P155, P191	28.25	14.17	17.10	2.94	1.55	4.49	14.80	0.30
P11, P47, P83, P119, P155, P191	28.5	14.31	17.25	2.94	1.55	4.49	14.76	0.30
P11, P47, P83, P119, P155, P191	28.75	14.46	17.40	2.94	1.55	4.49	14.71	0.31
P11, P47, P83, P119, P155, P191	29	14.61	17.55	2.94	1.55	4.49	14.67	0.31
P11, P47, P83, P119, P155, P191	29.25	14.76	17.70	2.94	1.55	4.49	14.63	0.31
P11, P47, P83, P119, P155, P191	29.5	14.91	17.85	2.94	1.55	4.49	14.59	0.31
P12, P48, P84, P120, P156, P192	29.75	18.27	15.45	2.82	1.55	4.38	14.48	0.30
P12, P48, P84, P120, P156, P192	30	18.12	15.30	2.82	1.55	4.38	14.52	0.30
P12, P48, P84, P120, P156, P192	30.25	17.97	15.15	2.82	1.55	4.38	14.56	0.30
P12, P48, P84, P120, P156, P192	30.5	17.82	15.00	2.82	1.55	4.38	14.60	0.30
P12, P48, P84, P120, P156, P192	30.75	17.67	14.85	2.82	1.55	4.38	14.64	0.30
P12, P48, P84, P120, P156, P192	31	17.52	14.70	2.82	1.55	4.38	14.68	0.30
P12, P48, P84, P120, P156, P192	31.25	17.37	14.55	2.82	1.55	4.38	14.72	0.30
P12, P48, P84, P120, P156, P192	31.5	17.22	14.40	2.82	1.55	4.38	14.76	0.30
P12, P48, P84, P120, P156, P192	31.75	17.08	14.25	2.82	1.55	4.38	14.80	0.30
P12, P48, P84, P120, P156, P192	32	16.93	14.10	2.82	1.55	4.38	14.85	0.29
P12, P48, P84, P120, P156, P192	32.25	16.78	13.95	2.82	1.55	4.38	14.89	0.29
P12, P48, P84, P120, P156, P192	32.5	16.63	13.80	2.82	1.55	4.38	14.93	0.29
P12, P48, P84, P120, P156, P192	32.75	16.48	13.65	2.82	1.55	4.38	14.97	0.29
P12, P48, P84, P120, P156, P192	33	16.33	13.51	2.82	1.55	4.38	15.01	0.29
P12, P48, P84, P120, P156, P192	33.25	16.18	13.36	2.82	1.55	4.38	15.05	0.29
P12, P48, P84, P120, P156, P192	33.5	16.03	13.21	2.82	1.55	4.38	15.09	0.29
P12, P48, P84, P120, P156, P192	33.75	15.88	13.06	2.82	1.55	4.38	15.13	0.29
P12, P48, P84, P120, P156, P192	34	15.73	12.91	2.82	1.55	4.38	15.17	0.29
P12, P48, P84, P120, P156, P192	34.25	15.58	12.76	2.82	1.55	4.38	15.21	0.29
P12, P48, P84, P120, P156, P192	34.5	15.43	12.61	2.82	2.11	4.93	15.26	0.32
P13, P49, P85, P121, P157, P193	34.75	15.28	12.46	2.82	2.11	4.93	15.30	0.32
P13, P49, P85, P121, P157, P193	35	15.13	12.31	2.82	2.11	4.93	15.34	0.32
P13, P49, P85, P121, P157, P193	35.25	14.98	12.16	2.82	2.11	4.93	15.38	0.32
P13, P49, P85, P121, P157, P193	35.5	14.84	12.01	2.82	2.11	4.93	15.42	0.32
P13, P49, P85, P121, P157, P193	35.75	14.69	11.86	2.82	2.11	4.93	15.46	0.32
P13, P49, P85, P121, P157, P193	36	14.54	11.71	2.82	2.11	4.93	15.50	0.32
P13, P49, P85, P121, P157, P193	36.25	14.39	11.56	2.82	2.11	4.93	15.54	0.32
P13, P49, P85, P121, P157, P193	36.5	14.24	11.42	2.82	2.11	4.93	15.58	0.32
P13, P49, P85, P121, P157, P193	36.75	14.09	11.27	2.82	2.11	4.93	15.63	0.32
P13, P49, P85, P121, P157, P193	37	13.94	11.12	2.82	2.11	4.93	15.67	0.31
P13, P49, P85, P121, P157, P193	37.25	13.79	10.97	2.82	2.11	4.93	15.71	0.31
P13, P49, P85, P121, P157, P193	37.5	13.64	10.82	2.82	2.11	4.93	15.75	0.31
P13, P49, P85, P121, P157, P193	37.75	13.49	10.67	2.82	2.11	4.93	15.79	0.31
P13, P49, P85, P121, P157, P193	38	13.34	10.52	2.82	2.11	4.93	15.83	0.31
P13, P49, P85, P121, P157, P193	38.25	13.19	10.37	2.82	2.11	4.93	15.87	0.31
P13, P49, P85, P121, P157, P193	38.5	13.04	10.22	2.82	2.11	4.93	15.91	0.31
P13, P49, P85, P121, P157, P193	38.75	12.89	10.07	2.82	2.11	4.93	15.95	0.31
P13, P49, P85, P121, P157, P193	39	12.75	9.92	2.82	2.11	4.93	16.00	0.31
P13, P49, P85, P121, P157, P193	39.25	12.60	9.77	2.82	2.11	4.93	16.04	0.31
P13, P49, P85, P121, P157, P193	39.5	12.45	9.62	2.82	2.11	4.93	16.08	0.31
P14, P50, P86, P122, P158, P194	39.75	35.75	39.46	3.71	2.11	5.82	8.65	0.67
P14, P50, P86, P122, P158, P194	40	35.89	39.61	3.71	2.11	5.82	8.61	0.68
P14, P50, P86, P122, P158, P194	40.25	36.04	39.76	3.71	2.11	5.82	8.57	0.68
P14, P50, P86, P122, P158, P194	40.5	36.19	39.91	3.71	2.11	5.82	8.53	0.68
P14, P50, P86, P122, P158, P194	40.75	36.34	40.06	3.71	2.11	5.82	8.48	0.69
P14, P50, P86, P122, P158, P194	41	36.49	40.20	3.71	2.11	5.82	8.44	0.69
P14, P50, P86, P122, P158, P194	41.25	36.64	40.35	3.71	2.11	5.82	8.40	0.69
P14, P50, P86, P122, P158, P194	41.5	36.79	40.50	3.71	2.11	5.82	8.36	0.70
P14, P50, P86, P122, P158, P194	41.75	36.94	40.65	3.71	2.11	5.82	8.32	0.70

P14, P50, P86, P122, P158, P194	42	37.09	40.80	3.71	2.11	5.82	8.28	0.70
P14, P50, P86, P122, P158, P194	42.25	37.24	40.95	3.71	2.11	5.82	8.24	0.71
P14, P50, P86, P122, P158, P194	42.5	37.39	41.10	3.71	2.11	5.82	8.20	0.71
P14, P50, P86, P122, P158, P194	42.75	37.54	41.25	3.71	2.11	5.82	8.16	0.71
P14, P50, P86, P122, P158, P194	43	37.69	41.40	3.71	2.11	5.82	8.12	0.72
P14, P50, P86, P122, P158, P194	43.25	37.84	41.55	3.71	2.11	5.82	8.07	0.72
P14, P50, P86, P122, P158, P194	43.5	37.98	41.70	3.71	2.11	5.82	8.03	0.72
P14, P50, P86, P122, P158, P194	43.75	38.13	41.85	3.71	2.11	5.82	7.99	0.73
P14, P50, P86, P122, P158, P194	44	38.28	42.00	3.71	2.11	5.82	7.95	0.73
P15, P51, P87, P123, P159, P195	44.25	9.57	6.79	2.78	2.11	4.89	16.87	0.29
P15, P51, P87, P123, P159, P195	44.5	9.42	6.64	2.78	2.11	4.89	16.91	0.29
P15, P51, P87, P123, P159, P195	44.75	9.27	6.49	2.78	2.11	4.89	16.95	0.29
P15, P51, P87, P123, P159, P195	45	9.12	6.34	2.78	2.11	4.89	16.99	0.29
P15, P51, P87, P123, P159, P195	45.25	8.97	6.19	2.78	2.11	4.89	17.03	0.29
P15, P51, P87, P123, P159, P195	45.5	8.82	6.04	2.78	2.11	4.89	17.07	0.29
P15, P51, P87, P123, P159, P195	45.75	8.67	5.89	2.78	2.11	4.89	17.12	0.29
P15, P51, P87, P123, P159, P195	46	8.52	5.74	2.78	2.11	4.89	17.16	0.29
P15, P51, P87, P123, P159, P195	46.25	8.37	5.59	2.78	2.11	4.89	17.20	0.28
P15, P51, P87, P123, P159, P195	46.5	8.22	5.44	2.78	2.11	4.89	17.24	0.28
P15, P51, P87, P123, P159, P195	46.75	8.07	5.29	2.78	2.11	4.89	17.28	0.28
P15, P51, P87, P123, P159, P195	47	7.92	5.14	2.78	2.11	4.89	17.32	0.28
P15, P51, P87, P123, P159, P195	47.25	7.78	4.99	2.78	2.11	4.89	17.36	0.28
P16, P52, P88, P124, P160, P196	47.5	7.63	4.84	2.78	2.11	4.89	17.40	0.28
P16, P52, P88, P124, P160, P196	47.75	7.48	4.70	2.78	2.11	4.89	17.44	0.28
P16, P52, P88, P124, P160, P196	48	7.33	4.55	2.78	2.11	4.89	17.48	0.28
P16, P52, P88, P124, P160, P196	48.25	7.18	4.40	2.78	2.11	4.89	17.53	0.28
P16, P52, P88, P124, P160, P196	48.5	7.03	4.25	2.78	2.11	4.89	17.57	0.28
P16, P52, P88, P124, P160, P196	48.75	6.88	4.10	2.78	2.11	4.89	17.61	0.28
P16, P52, P88, P124, P160, P196	49	6.73	3.95	2.78	2.11	4.89	17.65	0.28
P16, P52, P88, P124, P160, P196	49.25	6.58	3.80	2.78	2.11	4.89	17.69	0.28
P16, P52, P88, P124, P160, P196	49.5	6.43	3.65	2.78	2.11	4.89	17.73	0.28
P16, P52, P88, P124, P160, P196	49.75	6.28	3.50	2.78	2.11	4.89	17.77	0.28
P16, P52, P88, P124, P160, P196	50	6.13	3.35	2.78	2.11	4.89	17.81	0.27
P16, P52, P88, P124, P160, P196	50.25	5.98	3.20	2.78	2.11	4.89	17.85	0.27
P16, P52, P88, P124, P160, P196	50.5	5.83	3.05	2.78	2.11	4.89	17.90	0.27
P17, P53, P89, P125, P161, P197, P217	50.75	5.43	3.94	1.49	2.11	3.60	18.01	0.20
P17, P53, P89, P125, P161, P197, P217	51	5.02	3.84	1.19	2.11	3.30	18.12	0.18
P17, P53, P89, P125, P161, P197, P217	51.25	4.62	3.73	0.89	2.11	3.00	18.23	0.16
P17, P53, P89, P125, P161, P197, P217	51.5	4.21	3.63	0.59	2.11	2.70	18.34	0.15
P17, P53, P89, P125, P161, P197	51.75	3.81	2.26	1.54	2.11	3.65	18.45	0.20
P17, P53, P89, P125, P161, P197	52	3.66	2.09	1.57	2.11	3.68	18.49	0.20
P17, P53, P89, P125, P161, P197	52.25	3.51	1.50	2.01	2.11	4.12	18.54	0.22
P17, P53, P89, P125, P161, P197	52.5	3.36	0.74	2.61	2.11	4.72	18.58	0.25
P17, P53, P89, P125, P161, P197	52.75	3.21	1.66	1.54	2.11	3.65	18.62	0.20
P17, P53, P89, P125, P161, P197	53	3.06	1.51	1.54	2.11	3.65	18.66	0.20
P17, P53, P89, P125, P161, P197	53.25	2.90	1.36	1.54	2.11	3.65	18.70	0.20
P17, P53, P89, P125, P161, P197	53.5	2.75	0.53	2.22	2.11	4.33	18.74	0.23
P17, P53, P89, P125, P161, P197	53.75	2.60	1.06	1.54	2.11	3.65	18.78	0.19
P17, P53, P89, P125, P161, P197	54	2.45	0.91	1.54	2.11	3.65	18.83	0.19
P17, P53, P89, P125, P161, P197	54.25	2.30	0.76	1.54	2.11	3.65	18.87	0.19
P17, P53, P89, P125, P161, P197	54.5	2.15	0.61	1.54	2.11	3.65	18.91	0.19
P18, P54, P90, P126, P162, P198	54.75	2.00	0.45	1.54	2.11	3.65	18.95	0.19
P18, P54, P90, P126, P162, P198	55	1.85	0.31	1.54	2.11	3.65	18.99	0.19
P18, P54, P90, P126, P162, P198	55.25	1.70	0.16	1.54	2.11	3.65	19.03	0.19
P18, P54, P90, P126, P162, P198	55.5	1.55	0.01	1.54	2.11	3.65	19.07	0.19
P18, P54, P90, P126, P162, P198	55.75	1.40	0.14	1.54	2.11	3.65	19.11	0.19
P18, P54, P90, P126, P162, P198	56	1.25	0.29	1.54	2.11	3.65	19.16	0.19
P18, P54, P90, P126, P162, P198	56.25	1.10	0.44	1.54	2.11	3.65	19.20	0.19
P18, P54, P90, P126, P162, P198	56.5	0.95	0.59	1.54	2.11	3.65	19.24	0.19

P18, P54, P90, P126, P162, P198	56.75	0.80	0.74	1.54	2.11	3.65	19.28	0.19
P18, P54, P90, P126, P162, P198	57	0.66	0.89	1.54	2.11	3.65	19.26	0.19
P18, P54, P90, P126, P162, P198	57.25	0.51	1.04	1.54	2.11	3.65	19.21	0.19
P18, P54, P90, P126, P162, P198	57.5	0.36	1.19	1.54	2.11	3.65	19.17	0.19
P18, P54, P90, P126, P162, P198	57.75	0.21	1.34	1.54	2.11	3.65	19.13	0.19

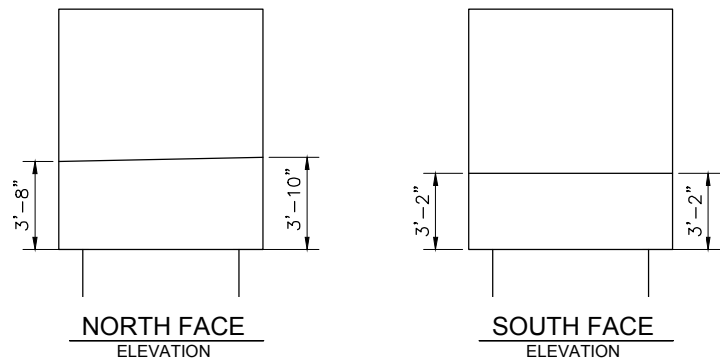
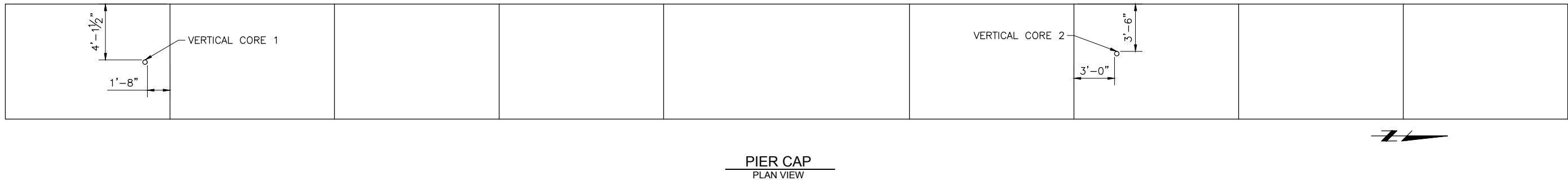
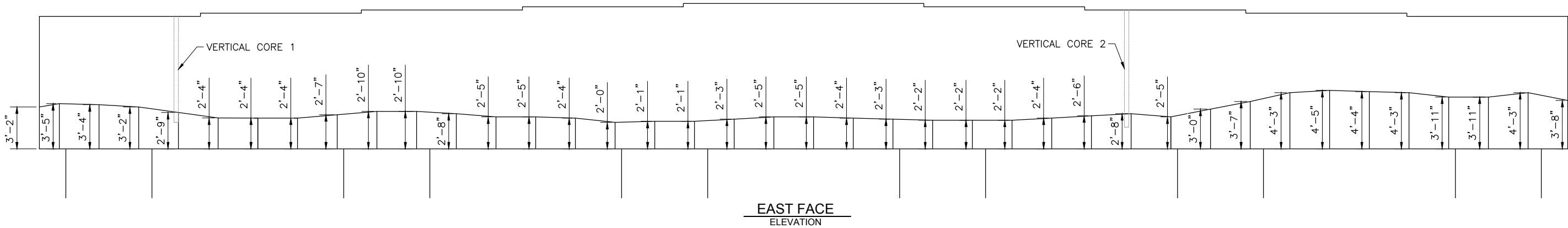
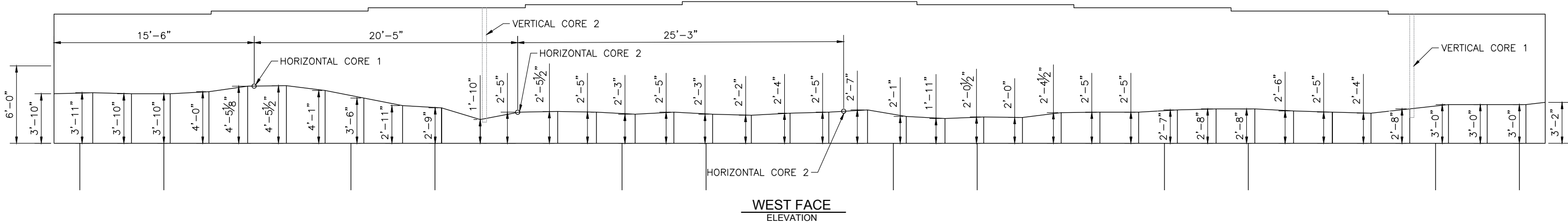
Fatigue I

Max 0.73



Appendix

Z:\COMMON\BR\AV\O\pier 1\406759-ELE-001-20190921.dwg Plotted: Bravo, Herman 24 Sep 2019 04:27:36 PM



- NOTES:
1. DIMENSIONS WERE TAKEN EVERY 3 FEET ON WEST AND EAST FACE.
 2. JOINT ELEVATIONS ON WEST FACE WERE TAKEN BY FIELD ENGINEERS ALMAAROOOF AND BRAVO USING A MANLIFT.
 3. JOINT ELEVATIONS ON EAST FACE WERE MEASURED USING DRONE FOOTAGE.

DRAWN	HRB	DATE	21 SEP 2019	REV.		DESCRIPTION	BY	DATE
DESIGNED		DATE					HRB	21 SEP 2019
CHECKED		DATE						
APPROVED		DATE						

PARSONS | **Mahan**
Joint Venture

BRIDGE OVER WHITE RIVER
PRAIRIE COUNTY
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

JOINT ELEVATION
PIER 1

Page 86 of 287
406759-P1-ELE-001

		Project: BRIDGE OVER WHITE RIVER	Page No: 1	Sheets: 1
By: PJT	Date: 9/27/19	Title: Pier 1 Cap As-built Review • Cap Joint Elevation Field Measurements		
Check:	Date:			

West Face				East Face				Average	
Pt.	Ft.	In.	Ft. (Decimal)	Pt.	Ft.	In.	Ft. (Decimal)	Pt.	Ft. (Decimal)
1	3	10	3.833'	1	3	2	3.167'	1	3.500'
2	3	11	3.917'	2	3	5	3.417'	2	3.667'
3	3	10	3.833'	3	3	4	3.333'	3	3.583'
4	3	10	3.833'	4	3	2	3.167'	4	3.500'
5	4	0	4.000'	5	2	9	2.750'	5	3.375'
6	4	5.1	4.427'	6	2	4	2.333'	6	3.380'
7	4	5.5	4.458'	7	2	4	2.333'	7	3.396'
8	4	1	4.083'	8	2	4	2.333'	8	3.208'
9	3	6	3.500'	9	2	7	2.583'	9	3.042'
10	2	11	2.917'	10	2	10	2.833'	10	2.875'
11	2	9	2.750'	11	2	10	2.833'	11	2.792'
12	1	10	1.833'	12	2	8	2.667'	12	2.250'
13	2	5	2.417'	13	2	5	2.417'	13	2.417'
14	2	5.5	2.458'	14	2	5	2.417'	14	2.438'
15	2	5	2.417'	15	2	4	2.333'	15	2.375'
16	2	3	2.250'	16	2	0	2.000'	16	2.125'
17	2	5	2.417'	17	2	1	2.083'	17	2.250'
18	2	3	2.250'	18	2	1	2.083'	18	2.167'
19	2	2	2.167'	19	2	3	2.250'	19	2.208'
20	2	4	2.333'	20	2	5	2.417'	20	2.375'
21	2	5	2.417'	21	2	5	2.417'	21	2.417'
22	2	7	2.583'	22	2	4	2.333'	22	2.458'
23	2	1	2.083'	23	2	3	2.250'	23	2.167'
24	1	11	1.917'	24	2	2	2.167'	24	2.042'
25	2	0.5	2.042'	25	2	2	2.167'	25	2.104'
26	2	0	2.000'	26	2	2	2.167'	26	2.083'
27	2	4.5	2.375'	27	2	4	2.333'	27	2.354'
28	2	5	2.417'	28	2	6	2.500'	28	2.458'
29	2	5	2.417'	29	2	8	2.667'	29	2.542'
30	2	7	2.583'	30	2	5	2.417'	30	2.500'
31	2	8	2.667'	31	3	0	3.000'	31	2.833'
32	2	8	2.667'	32	3	7	3.583'	32	3.125'
33	2	6	2.500'	33	4	3	4.250'	33	3.375'
34	2	5	2.417'	34	4	5	4.417'	34	3.417'
35	2	4	2.333'	35	4	4	4.333'	35	3.333'
36	2	8	2.667'	36	4	3	4.250'	36	3.458'
37	3	0	3.000'	37	3	11	3.917'	37	3.458'
38	3	0	3.000'	38	3	11	3.917'	38	3.458'
39	3	0	3.000'	39	4	3	4.250'	39	3.625'
40	3	2	3.167'	40	3	8	3.667'	40	3.417'
Average =			2.809'	Average =			2.869'	Average = 2.839'	

**SUBSTRUCTURE DESIGN
NON-SEISMIC LOADS
MAIN UNIT**

**PIER NOS. 1 and 2
COLUMN DESIGN**

Jacobs Engineering Group
PROGRAM: LEAP® RC-PIER® V8i (SELECTseries 6)-v13.0.0.68
Bentley Systems, Inc. - www.bentley.com
PHONE : TOLL-FREE 1-800-778-4277

SHEET 1 OF 42
JOB NO. Job WLXM2620 -
BY DATE Jun/30/2014
CKD. CW DATE 7/15

PROJECT: White River - Main Unit - Substructure - Piers 1 and 2 Column Design

PROJECT DATA
=====

Project : White River - Main Unit - Substructure - Piers 1 and 2 Column Design
User Job No.: Job WLXM2620 - 3094
Designer :
Date : Jun/30/2014
Checker :
Checked Date:
State : AR State Job No. :
Structure type: Pier.
Pier View : Upstation.

Code : AASHTO LRFD (6th Edition, 2012)
Comments : Run for Strength design of columns

STRENGTH DESIGN
PIER 1 CAP

PMJV Appeal 10-03-2019
Memo contained an additional
3 pages of JACOBS
Calculations used in original
2015 design, removed from
this package

PROJECT: White River - Main Unit - Substructure - Piers 1 and 2 Column Design

LOADS

Pier View : Upstation.
Load Cases: 32

INPUT LOADS

Loadcase ID: DC1 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-786.32
1	2	Y	-830.49
1	3	Y	-860.42
1	4	Y	-870.72
1	5	Y	-885.24
1	6	Y	-884.94
1	7	Y	-875.87
1	8	Y	-864.06
1	9	Y	-853.75
1	10	Y	-767.94

Loadcase ID: DW1 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-90.64
1	2	Y	-90.18
1	3	Y	-90.93
1	4	Y	-90.47
1	5	Y	-90.58
1	6	Y	-90.66
1	7	Y	-91.10
1	8	Y	-91.55
1	9	Y	-93.04
1	10	Y	-88.67

Loadcase ID: LL1 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-18.57
1	2	Y	-113.50
1	3	Y	-18.57
1	1	Y	-30.02
1	2	Y	-183.40
1	3	Y	-30.02

Loadcase ID: LL2 Name:
Multiplier = 1.000

PROJECT: White River - Main Unit - Substructure - Piers 1 and 2 Column Design

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-12.47
1	2	Y	-94.59
1	3	Y	-48.15
1	4	Y	-94.59
1	5	Y	-1.29
1	1	Y	-20.14
1	2	Y	-152.84
1	3	Y	-77.81
1	4	Y	-152.84
1	5	Y	-2.08

Loadcase ID: LL3 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-84.42
1	2	Y	-107.07
1	3	Y	-104.88
1	4	Y	-23.75
1	1	Y	-136.41
1	2	Y	-173.02
1	3	Y	-169.48
1	4	Y	-38.38

Loadcase ID: LL4 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-64.55
1	2	Y	-81.88
1	3	Y	-82.72
1	4	Y	-79.65
1	5	Y	-17.61
1	1	Y	-104.31
1	2	Y	-132.31
1	3	Y	-133.67
1	4	Y	-128.70
1	5	Y	-28.45

Loadcase ID: LL5 Name:
Multiplier = 1.000

Bearing loads:

Line #	Bearing #	Dir.	Load, kips
1	1	Y	-64.55
1	2	Y	-81.88
1	3	Y	-82.72
1	4	Y	-79.65
1	5	Y	-27.94

PMJV Appeal 10-03-2019
Memo contained an additional
16 pages of JACOBS
Calculations used in original
2015 design, removed from
this package

PROJECT: White River - Main Unit - Substructure - Piers 1 and 2 Column Design

-1280.3 -6227.2 82 9.24 18.72 18.72 9.24 12.00 12.00

Span 6: From 89.25 ft To 110.25 ft

Loc	AbsLoc	H	Mmax	Mr	Comb	Asb-req	Asb-prv	Asb-eff	Ast-req	Ast-prv	Ast-eff
ft	ft	in	Mmin	Mr	Comb	Asb-req	Asb-prv	Asb-eff	Ast-req	Ast-prv	Ast-eff
			kips-ft	kips-ft		in^2	in^2	in^2	in^2	in^2	in^2
2.9	92.1	120	0.0	9641.1	0	9.24	18.72	18.72	9.24	12.00	12.00
			-1739.8	-6227.2	99	9.24	18.72	18.72	9.24	12.00	12.00
11.1	100.3	120	5884.9	9641.1	5	15.16	18.72	18.72	9.24	12.00	12.00
			0.0	-6227.2	0	9.24	18.72	18.72	9.24	12.00	12.00
18.1	107.4	120	587.3	9641.1	208	9.24	18.72	18.72	9.24	12.00	12.00
			-2026.8	-6227.2	82	9.24	18.72	18.72	9.24	12.00	12.00

Span 7: From 110.25 ft To 115.50 ft

Loc	AbsLoc	H	Mmax	Mr	Comb	Asb-req	Asb-prv	Asb-eff	Ast-req	Ast-prv	Ast-eff
ft	ft	in	Mmin	Mr	Comb	Asb-req	Asb-prv	Asb-eff	Ast-req	Ast-prv	Ast-eff
			kips-ft	kips-ft		in^2	in^2	in^2	in^2	in^2	in^2
2.9	113.1	120	0.0	9574.1	0	9.24	18.72	18.59	9.24	12.00	12.00
			-44.9	-6227.2	225	9.24	18.72	18.69	9.24	12.00	12.00

Note:

* The provided reinforcement is not adequate, either less than required or larger than maximum allowed.

SHEAR AND TORSION DESIGN:

Simplified Method used for design.

Span 1: From 0.00 ft To 5.25 ft

Loc	AbsLoc	Pos	Vu	Comb	Tu	Comb	phi*Vn	T-lim	Avs/s	2Ats/s	Av/s	Aprv/s	Alx
ft	ft		kips		kips-ft		kips	kips-ft	<-----	in^2/ft	----->		in'
2.37	2.37	L	37.9	225	0.0	0	1669.9	1092.0	0.00	0.00	0.00	1.24	0.
Loc	AbsLoc	Pos	Vc	Vs	Beta	Theta	b	dv	Esp_s				
ft	ft		kips	kips		deg	in	in					
2.37	2.37	L	1142.68	712.81	2.00	45.00	84.00	114.97	0.0000				

Span 2: From 5.25 ft To 26.25 ft

Loc	AbsLoc	Pos	Vu	Comb	Tu	Comb	phi*Vn	T-lim	Avs/s	2Ats/s	Av/s	Aprv/s	Alx
ft	ft		kips		kips-ft		kips	kips-ft	<-----	in^2/ft	----->		in'
2.88	8.13	R	1172.3	3	549.4	107	1669.4	1092.0	0.99	0.00	0.99	1.24	10.
9.92	15.17	L	1078.5	13	514.9	1	1666.4	1092.0	0.99	0.00	0.99	1.24	8.
		R	919.8	1	514.9	1	1666.4	1092.0	0.99	0.00	0.99	1.24	6.
18.12	23.37	L	1029.1	1	945.9	3	1669.4	1092.0	0.99	0.00	0.99	1.24	1.
Loc	AbsLoc	Pos	Vc	Vs	Beta	Theta	b	dv	Esp_s				
ft	ft		kips	kips		deg	in	in					
2.88	8.13	R	1142.33	712.59	2.00	45.00	84.00	114.93	0.0000				

PROJECT: White River - Main Unit - Substructure - Piers 1 and 2 Column Design

9.92	15.17	L	1140.29	711.32	2.00	45.00	84.00	114.73	0.0000
		R	1140.29	711.32	2.00	45.00	84.00	114.73	0.0000
18.12	23.37	L	1142.33	712.59	2.00	45.00	84.00	114.93	0.0000

Span 3: From 26.25 ft To 47.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips-ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s -----	2Ats/s in^2/ft	Av/s -----	Aprv/s -----	Alx in'
2.88	29.13	R	633.7	459	769.0	8	1669.4	1092.0	0.99	0.00	0.99	1.24	0.
13.25	39.50	L	495.5	459	769.0	8	1666.4	1092.0	0.00	0.00	0.00	1.24	0.
		R	1412.3	2	883.6	3	1666.4	1092.0	0.99	0.00	0.99	1.24	12.
18.12	44.37	L	1477.2	2	883.6	3	1669.4	1092.0	0.99	0.00	0.99	1.24	11.

Loc ft	AbsLoc ft	Pos	Vc kips	Vs kips	Beta	Theta deg	b in	dv in	Esp_s
2.88	29.13	R	1142.33	712.59	2.00	45.00	84.00	114.93	0.0000
13.25	39.50	L	1140.29	711.32	2.00	45.00	84.00	114.73	0.0000
		R	1140.29	711.32	2.00	45.00	84.00	114.73	0.0000
18.12	44.37	L	1142.33	712.59	2.00	45.00	84.00	114.93	0.0000

Span 4: From 47.25 ft To 68.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips-ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s -----	2Ats/s in^2/ft	Av/s -----	Aprv/s -----	Alx in'
2.88	50.13	R	1657.9	226	915.0	480	2310.8	1092.0	1.22	0.00	1.22	2.48	9.
4.42	51.67	L	1633.4	226	458.5	8	2306.6	1092.0	1.18	0.00	1.18	2.48	3.
		R	197.9	144	458.5	28	2306.6	1092.0	0.00	0.00	0.00	2.48	0.
16.58	63.83	L	199.2	90	458.5	8	2306.6	1092.0	0.00	0.00	0.00	2.48	0.
		R	1702.2	10	458.5	8	2306.6	1092.0	1.31	0.00	1.31	2.48	5.
18.12	65.37	L	1722.6	5	914.9	255	2310.8	1092.0	1.34	0.00	1.34	2.48	9.

Loc ft	AbsLoc ft	Pos	Vc kips	Vs kips	Beta	Theta deg	b in	dv in	Esp_s
2.88	50.13	R	1142.33	1425.18	2.00	45.00	84.00	114.93	0.0000
4.42	51.67	L	1140.29	1422.63	2.00	45.00	84.00	114.73	0.0000
		R	1140.29	1422.63	2.00	45.00	84.00	114.73	0.0000
16.58	63.83	L	1140.29	1422.63	2.00	45.00	84.00	114.73	0.0000
		R	1140.29	1422.63	2.00	45.00	84.00	114.73	0.0000
18.12	65.37	L	1142.33	1425.18	2.00	45.00	84.00	114.93	0.0000

Span 5: From 68.25 ft To 89.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips-ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s -----	2Ats/s in^2/ft	Av/s -----	Aprv/s -----	Alx in'
2.88	71.13	R	1414.0	10	598.8	482	1669.4	1092.0	0.99	0.00	0.99	1.24	12.
7.75	76.00	L	1349.1	10	598.8	482	1666.4	1092.0	0.99	0.00	0.99	1.24	8.
		R	411.9	237	480.4	5	1666.4	1092.0	0.00	0.00	0.00	1.24	0.
18.12	86.37	L	550.0	237	480.4	5	1669.4	1092.0	0.99	0.00	0.99	1.24	0.

Loc ft	AbsLoc ft	Pos	Vc kips	Vs kips	Beta	Theta deg	b in	dv in	Esp_s
2.88	71.13	R	1142.33	712.59	2.00	45.00	84.00	114.93	0.0000
7.75	76.00	L	1140.29	711.32	2.00	45.00	84.00	114.73	0.0000
		R	1140.29	711.32	2.00	45.00	84.00	114.73	0.0000
18.12	86.37	L	1142.33	712.59	2.00	45.00	84.00	114.93	0.0000

PROJECT: White River - Main Unit - Substructure - Piers 1 and 2 Column Design

Span 6: From 89.25 ft To 110.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips-ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s <----- in^2/ft	2Ats/s in^2/ft	Av/s in^2/ft	Aprv/s in^2/ft	Alx in^2
2.88	92.13	R	887.7	462	311.7	10	1669.4	1092.0	0.99	0.00	0.99	1.24	1.
11.08	100.33	L	778.5	462	311.7	10	1666.4	1092.0	0.99	0.00	0.99	1.24	0.
		R	892.6	282	311.7	10	1666.4	1092.0	0.99	0.00	0.99	1.24	3.
18.12	107.37	L	986.4	237	549.4	85	1669.4	1092.0	0.99	0.00	0.99	1.24	1.

Loc ft	AbsLoc ft	Pos	Vc kips	Vs kips	Beta	Theta deg	b in	dv in	Esp_s
2.88	92.13	R	1142.33	712.59	2.00	45.00	84.00	114.93	0.0000
11.08	100.33	L	1140.29	711.32	2.00	45.00	84.00	114.73	0.0000
		R	1140.29	711.32	2.00	45.00	84.00	114.73	0.0000
18.12	107.37	L	1142.33	712.59	2.00	45.00	84.00	114.93	0.0000

Span 7: From 110.25 ft To 115.50 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips-ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s <----- in^2/ft	2Ats/s in^2/ft	Av/s in^2/ft	Aprv/s in^2/ft	Alx in^2
2.88	113.13	R	37.9	225	0.0	0	1669.9	1092.0	0.00	0.00	0.00	1.24	0.

Loc ft	AbsLoc ft	Pos	Vc kips	Vs kips	Beta	Theta deg	b in	dv in	Esp_s
2.88	113.13	R	1142.68	712.81	2.00	45.00	84.00	114.97	0.0000

Note:

- Pos is the design position. L suggests the calculation is done at immediate left of "Loc" and R suggests at immediate right of it.
- T-lim is the limiting value of torsion for the concrete section. If actual torsion is higher than this value, torsional steel has to be provided.
- Avs/s is the required area of steel per unit length for shear force.
- 2Ats/s is the required area of steel per unit length for two legs of torsional reinforcement.
- Av/s is the total required area of steel per unit length due to shear plus torsion.
- Aprv/s is the total provided area of transverse steel reinforcement.
- Alx is the EFFECTIVE longitudinal steel required in addition to the PROVIDED EFFECTIVE flexural steel.
- Vc is the nominal shear resistance of concrete.
- Vs is the nominal shear resistance of transverse reinforcement.
- Beta is the factor indicating ability of diagonally cracked concrete to transmit tension and shear.
- Theta is the angle of inclination of diagonal compressive stress.
- # Vu is greater than phi*Vn.

CRACKING/FATIGUE CHECK:

Cracking check as per AASHTO LRFD (6th Edition, 2012)

Span 1: From 0.00 ft To 5.25 ft

<----- Cracking ----->							<----- Fatigue ----->			
Loc	AbsLoc	H	Comb	fs-t	dc	Sqrt Sprt	fs-t	ratio	fs-t	Comb

PMJV Appeal 10-03-2019
Memo contained an additional
15 pages of JACOBS
Calculations used in original
2015 design, removed from
this package

Note: Shaded Values Represent Input

DC1 is the total non-composite DC Load and DC2 is the total composite DC Load.

DC Loads:

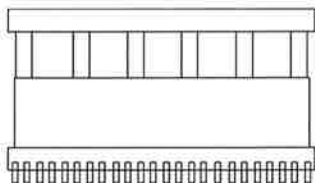
DC Loads are the Sum of DC1 and DC2.

	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6	Girder 7	Girder 8	Girder 9	Girder 10	
Bent 9	0	0	0	0	0	0	0	0	0	0	
Pier 1	786.32	830.49	860.42	870.72	885.24	884.94	876.87	864.06	853.75	767.94	8480.75
Pier 2	787.02	830.92	860.71	871.57	885.12	886.05	876.55	863.79	854.78	769.19	8485.70
Bent 10	0	0	0	0	0	0	0	0	0	0	

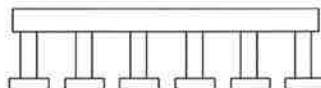
Add'l DC Loads: Displaced Concrete for Shaft/Footing RCPier Run

Since RCPier will not allow a model with both multiple columns (above) and a solid shaft (below) separate runs are made for the design of the cap and columns above the shaft and for the design of the shaft and footing. The model for the design of the shaft and footing have the shaft extending from the top of footing to the bottom of cap. Refer to sketches below.

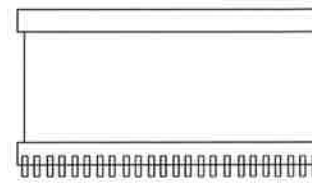
Actual Condition:



RCPier Model for Cap & Column Design:



RCPier Model for Shaft & Footing Design:



In the RCPier Model for the shaft and footing design, there is additional concrete over the length of the shaft/column where there is actually only the multiple columns. An upward uniform dead load (DC) force must be added to offset the additional concrete that is not present in the actual condition. This upward dead load force is equal to the difference of the weight of the concrete in the multiple columns versus the weight of the concrete in the solid shaft.

T/shaft Elevation = 196.0
Concrete unit wt. = 0.145 kcf per AASHTO Table 3.5.1-1
Shaft area, in plan, of the shaft = 949.25 sq. ft.
Number of columns = 6
Diameter of col's = 6.50 ft.
Sum of column areas = 199.10 sq. ft.
Difference in area between col's and shaft = 750.15 sq. ft.

Dead load (DC) force to offset weight difference between columns and shaft = 108.77 klf

from: to:
y1/L y2/L
0.700 0.954

LL - Live Loads: 905.16 917.46 939.22 944.72 961.81 957.38 953.98 943.02 941 879.26

Piers 1 and 2 have 6 columns and 10 girders. The columns are evenly spaced and centered about the CL of the structure.

	Lane (k)	HL93 (k)	2HL93 (k)	Without Impact		With Impact	
				Case 1	Case 2	Case 1	Case 2
Bent 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pier 1	225.40	71.88	139.49	297.28	328.40	321.00	369.83
Pier 2	225.40	71.88	139.49	297.28	328.40	321.00	369.83
Bent 10	0	0.00	0.00	0.00	0.00	0.00	0.00

Max. react. at int. support:

From file "main_unit_LL_Pier1&2.std"

max. lane react. at Pier1&2 = 225.40 k
max. 1 truck react. at Pier1&2 = 71.88 k
max. 2 trucks react. at Pier1&2 = 139.49 k

Case 1 is Equivalent to Lane + HL93

Case 2 is Equivalent to 0.9 * (Lane + 2HL93)

By inspection, Tandem will not govern over Truck for these span lengths.

Pier	w/o Impact (k/ln. or k/truck)	
	Lane	Truck
Bent 9	0.00	0.00
Pier 1	202.86	125.54
Pier 2	202.86	125.54
Bent 10	0.00	0.00

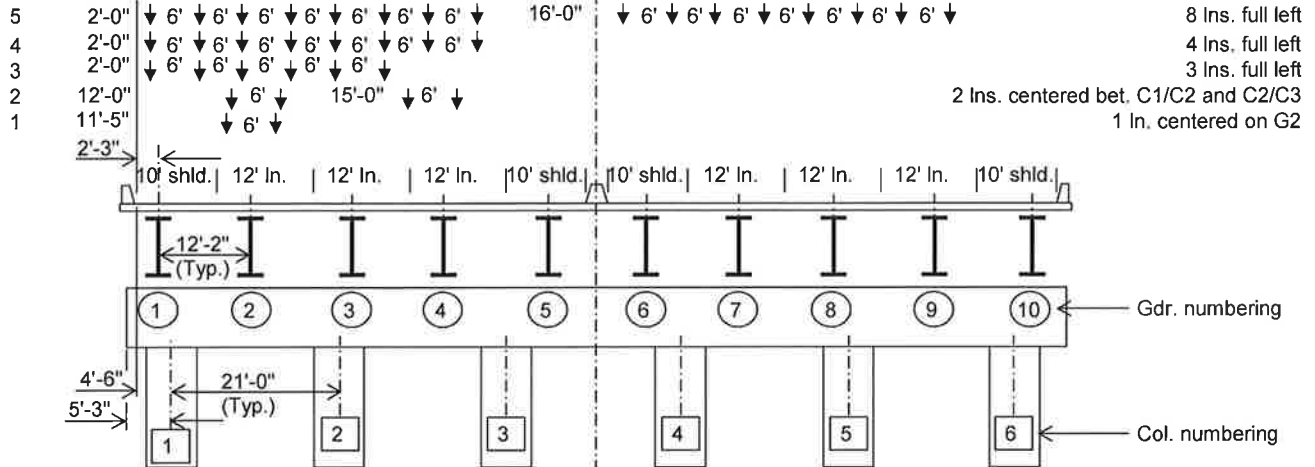
Lane is (1.0 * Lane) if Case 1 governs or is (0.9 * Lane) if Case 2 (Double Truck Case) governs.

Truck is (1.0 * HL93) if Case 1 governs or is (0.9 * 2HL93) if Case 2 (Double Truck Case) governs.

These loads will be used to determine live loads on cap based on wheel distribution factors determined below.

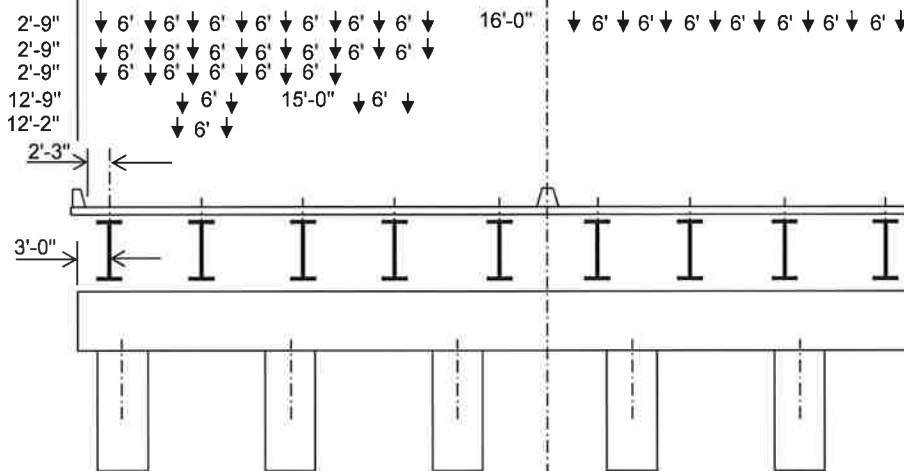
Input:

LL Case



LL Case	Live Load Distribution Factors (wheel lines/girder)										Total wheels
	Gdr. 1	Gdr. 2	Gdr. 3	Gdr. 4	Gdr. 5	Gdr. 6	Gdr. 7	Gdr. 8	Gdr. 9	Gdr. 10	
5	1.5822	2.0068	2.0274	1.9521	0.6849	1.7740	2.0274	2.0274	1.7192	0.1986	16.0000
4	1.5822	2.0068	2.0274	1.9521	0.4315	0.0000	0.0000	0.0000	0.0000	0.0000	8.0000
3	1.5822	2.0068	1.9658	0.4452	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6.0000
2	0.4086	1.5068	0.7671	1.5068	0.0205	0.0000	0.0000	0.0000	0.0000	0.0000	4.0000
1	0.2466	1.5068	0.2466	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0000

LLDF = 0.125 0.75 0.125
← edge of pier cap



Dist. from edge of pier cap to LL centroid	
23.75	ft. LL5*
23.75	ft. LL4
17.75	ft. LL3
26.25	ft. LL2
15.1667	ft. LL1

* - Use same value as for LL4, since only 4 lanes can be in one direction.

SUBSTRUCTURE DESIGN SEISMIC LOADS

UNIT 3 (MAIN UNIT)

PIER NOS. 1 and 2

(See Bent 8 for Drilled Shaft Embedments)

REFERENCE

Bearing	EQX			EQY		
	P	V2	V3	P	V2	V3
	Y	X	Z	Y	X	Z
1	70.259	58.883	127.586	219.088	183.998	46.07
2	8.882	62.715	127.165	17.755	195.981	46.19
3	8.374	63	127.003	12.923	196.885	46.343
4	8.122	63.305	126.652	9.574	197.852	46.371
5	7.899	63.584	126.486	4.463	198.73	46.442
6	8.058	63.807	126.304	4.566	199.428	46.504
7	8.44	63.543	126.091	9.383	198.594	46.599
8	9.072	63.26	126.039	12.629	197.697	46.816
9	9.904	62.989	125.75	17.046	196.839	47.057
10	71.222	59.192	125.67	218.92	184.961	47.502
Total	210.2	624.3	1264.7	526.3	1951.0	465.9
Max	71.22	63.81	127.59	219.09	199.43	47.50

CSI
RCPIER

THESE ARE BEFORE THE "R" FACTOR REDUCTION!!!

Column	EQX						EQY					
	P	V2	V3	T	M2	M3	P	V2	V3	T	M2	M3
	Y	X	Z	MY	MX	MZ	Y	X	Z	MY	MX	MZ
1	199.346	94.443	148.189	388.244	22074.47	14123.69	628.112	297.924	49.777	1020.483	8629.912	44492.46
2	29.966	101.652	146.193	388.954	22303.53	15429.9	76.447	320.672	49.824	1059.274	8328.195	48603.89
3	19.455	105.126	146.505	434.062	22252.63	16043.56	39.779	331.604	50.666	1144.274	8095.152	50525.92
4	18.325	105.129	145.976	489.419	22317.69	16043.95	41.538	331.609	51.243	1216.737	7949.863	50526.55
5	28.273	101.657	144.49	542.17	22520.88	15430.58	79.818	320.674	51.738	1249.98	7858.697	48603.95
6	201.22	94.447	144.816	581.222	22532.56	14124	629.075	297.908	53.709	1258.483	7698.555	44489.32
	496.6	602.5	876.2	2824.1	134001.7	91195.7	1494.8	1900.4	307.0	6949.2	48560.4	287242.1

Shaft	EQX						EQY					
	P	V2	V3	T	M2	M3	P	V2	V3	T	M2	M3
	Y	X	Z	MY	MX	MZ	Y	X	Z	MY	MX	MZ
1	718.703	438.183	393.46	3167.554	19098.51	208411.1	2207.134	226.314	1168.823	4132.234	24495.24	77098.24
2	201.041	458.431	241.598	2622.775	29357.69	209320.9	624.202	213.391	723.312	4236.431	79744.39	76623.62
3	31.9	468.354	210.21	1711.746	33947.1	210082.5	94.338	205.851	631.302	4104.196	96080.32	75778.8
4	36.778	468.767	210.235	1520.022	33901.92	210207.7	96.278	199.741	631.4	3755.245	95919.77	74758.86
5	202.645	459.744	241.803	2292.588	29241.13	209680.3	627.44	193.034	723.984	3384.213	79284.08	73749.99
6	718.352	440.731	394.77	2853.096	19074.68	208939.7	2208.76	182.765	1172.746	3181.901	23682	73049.88
	1909.4	2734.2	1692.1	14167.8	164621.0	1256642.2	5858.2	1221.1	5051.6	22794.2	399205.8	451059.4

RC-PIER LOAD INPUTS												
	LOAD CASE - EQ1			LOAD CASE - EQ2			LOAD CASE - EQ3			LOAD CASE - EQ4		
	Y	X	Z	Y	X	Z	Y	X	Z	Y	X	Z
1	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
2	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
3	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
4	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
5	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
6	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
7	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
8	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
9	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
10	49.66	60.25	87.62	149.48	190.04	30.70	-49.66	60.25	87.62	-149.48	190.04	30.70
Σ/total	1.00	1.00	1.00	1.00	1.00	1.00	-1.00	1.00	1.00	-1.00	1.00	1.00

REFERENCE

Bearing	EQX			EQY		
	P	V2	V3	P	V2	V3
	Y	X	Z	Y	X	Z
1	73.218	60.221	114.121	212.781	180.598	46.399
2	12.759	63.827	113.898	17.707	191.437	45.956
3	11.924	64.156	113.869	13.316	192.448	45.718
4	11.291	64.473	113.671	10.168	193.428	45.53
5	11.046	64.763	113.63	5.787	194.308	45.477
6	10.889	64.999	113.586	5.314	195.015	45.47
7	11.013	64.719	113.539	9.567	194.162	45.461
8	11.212	64.42	113.657	12.682	193.236	45.485
9	11.518	64.104	113.617	17.241	192.262	45.375
10	72.084	60.521	113.791	214.465	181.496	45.264
Total	237.0	636.2	1137.4	519.0	1908.4	456.1
Max	73.22	65.00	114.12	214.47	195.02	46.40

CSI
RCPIER

THESE ARE BEFORE THE "R" FACTOR REDUCTION!!!

Column	EQX						EQY					
	P	V2	V3	T	M2	M3	P	V2	V3	T	M2	M3
	Y	X	Z	MY	MX	MZ	Y	X	Z	MY	MX	MZ
1	205.949	94.969	137.24	583.975	20315.57	14090.26	618.349	290.096	52.531	1359.083	7190.696	42921.61
2	30.973	102.146	135.801	539.745	20430.56	15401.48	76.576	312.018	50.091	1333.387	7472.445	46905.33
3	22.209	105.594	136.428	494.759	20318.38	16014.94	40.968	322.483	49.235	1279.122	7650.638	48748.07
4	24.132	105.59	136.299	454.889	20321.04	16014.13	39.153	322.479	48.31	1191.307	7867.683	48747.01
5	34.745	102.13	135.392	427.398	20439.52	15398.62	74.414	312.002	47.044	1103.177	8176.007	46901.11
6	203.845	94.938	136.447	421.795	20334.56	14084.7	620.626	290.059	46.302	1071.696	8590.909	42912.78
	521.9	605.4	817.6	2922.6	122159.6	91004.1	1470.1	1849.1	293.5	7337.8	46948.4	277135.9

Shaft	EQX						EQY					
	P	V2	V3	T	M2	M3	P	V2	V3	T	M2	M3
	Y	X	Z	MY	MX	MZ	Y	X	Z	MY	MX	MZ
1	727.314	386.521	398.83	2773.735	24163.98	188984.1	2094.025	183.429	1085.815	4094.494	42787.73	70310.54
2	200.966	402.36	230.565	2296.547	36396.17	189462.6	588.757	193.088	635.606	4357.246	93242.93	71052.47
3	40.804	410.182	196.347	1734.032	41039.3	189820.6	90.421	200.547	544.197	4795.204	108040.2	72332.33
4	33.218	410.217	196.337	2036.617	41097.6	189695.7	89.346	209.218	544.134	5172.487	108246.8	73766.3
5	199.124	402.518	230.443	2857.427	36542.41	189118.6	587.38	221.612	635.133	5279.812	93809.91	75078.91
6	729.346	386.93	397.26	3329.772	24269.8	188516	2096.273	242.657	1081.066	5120.376	43783.63	75935.76
	1930.8	2398.7	1649.8	15028.1	203509.3	1135597.6	5546.2	1250.6	4526.0	28819.6	489911.2	438476.3

RC-PIER LOAD INPUTS												
	LOAD CASE - EQ1			LOAD CASE - EQ2			LOAD CASE - EQ3			LOAD CASE - EQ4		
	Y	X	Z	Y	X	Z	Y	X	Z	Y	X	Z
1	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
2	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
3	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
4	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
5	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
6	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
7	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
8	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
9	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
10	52.19	60.54	81.76	147.01	184.91	29.35	-52.19	60.54	81.76	-147.01	184.91	29.35
Σ/total	1.00	1.00	1.00	1.00	1.00	1.00	-1.00	1.00	1.00	-1.00	1.00	1.00

SUBSTRUCTURE DESIGN SEISMIC LOADS

UNIT 3 (MAIN UNIT) PIER NOS. 1 and 2 RC-PIER ANALYSIS

				Sheet #	1
				Job #	Job WLXM2620 - 3094
Program:	LEAP® RC-PIER® V8i (SELECTseries 7)	Jacobs Engineering Group		Designed	DMS
Version:	14.01.00.01	Copyright © Bentley Systems, Inc. 2014		Date	Jun/20/2016
		www.bentley.com	Phone: 1-800-778-4277	Checked	<i>KAK</i>
File Name:	PIER_2_COLUMN_SEISMIC_Drilled Shaft.rcp			Date	<i>7/11/16</i>

CAP DESIGN

CAP DESIGN

Code: AASHTO LRFD

Units: US

Pier View: Upstation.

DESIGN PARAMETERS

f'_c = 3500.0 psi	
F_y flex = 60000.0 psi	F_y shear = 60000.0 psi
E_c = 3408.8 ksi	E_s = 29000.0 ksi
Crack check as per current LRFD	
Crack control Exposure = 1.00	
Concrete Type : Normal Weight.	
Design of cap at face of column.	

CAP GEOMETRY

Straight Cap : Length(X) = 115.50 ft Depth(Z) = 84.00 in

Cap Section Properties

Sec.	Area ft ^2	Iz in ^4	Iy in ^4
1	70.00	12096000.00	5927040.00

MAIN REINFORCEMENT

	Bar size	Quantity	Bar dist. in	As total in^2	From ft	To ft	Hook
TOP							
	US#9[M29]	12	3.81	12.000	0.00	115.50	Both 180
BOTTOM							
	US#11[M36]	12	3.96	18.720	0.00	115.50	Both 180



				Sheet #	2
				Job #	Job WLXM2620 - 3094
Program:	LEAP® RC-PIER® V8i (SELECTseries 7)	Jacobs Engineering Group		Designed	DMS
Version:	14.01.00.01	Copyright © Bentley Systems, Inc. 2014		Date	Jun/20/2016
		www.bentley.com	Phone: 1-800-778-4277	Checked	KAK
File Name:	PIER_2_COLUMN_SEISMIC_Drilled Shaft.rcp			Date	7/11/16

STIRRUPS

From ft	To ft	Stirrup Size	n legs	Spacing in	Aprv/s in ² / ft	Bar Type
0.00	49.96	US#6[M19]	2	8.50	1.24	Stirrup
49.96	54.21	US#6[M19]	4	8.50	2.48	Stirrup
54.21	61.29	US#6[M19]	2	8.50	1.24	Stirrup
61.29	65.54	US#6[M19]	4	8.50	2.48	Stirrup
65.54	115.50	US#6[M19]	2	8.50	1.24	Stirrup

Clear Cover on Sides = 2.00 in

FLEXURE DESIGN

Span 1: From 0.00 ft To 5.25 ft

Loc ft	AbsLoc ft	H in	Mmax Mmin kips-ft	Mr kips-ft	Comb	Asb-req in ²	Asb-prv in ²	Asb-eff in ²	Ast-req in ²	Ast-prv in ²	Ast-eff in ²
2.4	2.4	120	0.0	9523.1	0	9.24	18.72	18.59	9.24	12.00	12.00
			-37.4	-6202.0	1	9.24	18.72	18.69	9.24	12.00	12.00

Span 2: From 5.25 ft To 26.25 ft

Loc ft	AbsLoc ft	H in	Mmax Mmin kips-ft	Mr kips-ft	Comb	Asb-req in ²	Asb-prv in ²	Asb-eff in ²	Ast-req in ²	Ast-prv in ²	Ast-eff in ²
2.9	8.1	120	2901.1	9589.9	246	9.24	18.72	18.72	9.24	12.00	12.00
			-4037.8	-6202.0	50	9.24	18.72	18.72	10.38	12.00	12.00
9.9	15.2	120	6823.6	9589.9	16	17.45	18.72	18.72	9.24	12.00	12.00
			0.0	-6202.0	0	9.24	18.72	18.72	9.24	12.00	12.00
18.1	23.4	120	316.1	9589.9	298	9.24	18.72	18.72	9.24	12.00	12.00
			-2062.2	-6202.0	20	9.24	18.72	18.72	9.24	12.00	12.00

Span 3: From 26.25 ft To 47.25 ft

Loc ft	AbsLoc ft	H in	Mmax Mmin kips-ft	Mr kips-ft	Comb	Asb-req in ²	Asb-prv in ²	Asb-eff in ²	Ast-req in ²	Ast-prv in ²	Ast-eff in ²
2.9	29.1	120	1573.8	9589.9	248	9.24	18.72	18.72	9.24	12.00	12.00
			-2429.1	-6202.0	46	9.24	18.72	18.72	9.24	12.00	12.00
13.3	39.5	120	4652.3	9589.9	47	12.00	18.72	18.72	9.24	12.00	12.00
			0.0	-6202.0	0	9.24	18.72	18.72	9.24	12.00	12.00
18.1	44.4	120	200.6	9589.9	297	9.24	18.72	18.72	9.24	12.00	12.00
			-3354.0	-6202.0	20	9.24	18.72	18.72	9.24	12.00	12.00



				Sheet #	3
				Job #	Job WLXM2620 - 3094
Program:	LEAP® RC-PIER® V8i (SELECTseries 7)	Jacobs Engineering Group		Designed	DMS
Version:	14.01.00.01	Copyright © Bentley Systems, Inc. 2014		Date	Jun/20/2016
		www.bentley.com	Phone: 1-800-778-4277	Checked	<i>KAK</i>
File Name:	PIER_2_COLUMN_SEISMIC_Drilled Shaft.rcp			Date	7/11/16

Span 4: From 47.25 ft To 68.25 ft

Loc ft	AbsLoc ft	H in	Mmax Mmin kips-ft	Mr kips-ft	Comb	Asb-req in^2	Asb-prv in^2	Asb-eff in^2	Ast-req in^2	Ast-prv in^2	Ast-eff in^2
2.9	50.1	120	388.7	9589.9	246	9.24	18.72	18.72	9.24	12.00	12.00
			-2123.2	-6202.0	50	9.24	18.72	18.72	9.24	12.00	12.00
4.4	51.7	120	2649.3	9589.9	16	9.24	18.72	18.72	9.24	12.00	12.00
			-701.5	-6202.0	298	9.24	18.72	18.72	9.24	12.00	12.00
16.6	63.8	120	2791.1	9589.9	50	9.24	18.72	18.72	9.24	12.00	12.00
			-631.1	-6202.0	247	9.24	18.72	18.72	9.24	12.00	12.00
18.1	65.4	120	465.9	9589.9	296	9.24	18.72	18.72	9.24	12.00	12.00
			-2007.3	-6202.0	19	9.24	18.72	18.72	9.24	12.00	12.00

Span 5: From 68.25 ft To 89.25 ft

Loc ft	AbsLoc ft	H in	Mmax Mmin kips-ft	Mr kips-ft	Comb	Asb-req in^2	Asb-prv in^2	Asb-eff in^2	Ast-req in^2	Ast-prv in^2	Ast-eff in^2
2.9	71.1	120	138.3	9589.9	246	9.24	18.72	18.72	9.24	12.00	12.00
			-3297.7	-6202.0	49	9.24	18.72	18.72	9.24	12.00	12.00
7.8	76.0	120	4566.0	9589.9	20	11.77	18.72	18.72	9.24	12.00	12.00
			0.0	-6202.0	0	9.24	18.72	18.72	9.24	12.00	12.00
18.1	86.4	120	1584.1	9589.9	300	9.24	18.72	18.72	9.24	12.00	12.00
			-2352.4	-6202.0	19	9.24	18.72	18.72	9.24	12.00	12.00

Span 6: From 89.25 ft To 110.25 ft

Loc ft	AbsLoc ft	H in	Mmax Mmin kips-ft	Mr kips-ft	Comb	Asb-req in^2	Asb-prv in^2	Asb-eff in^2	Ast-req in^2	Ast-prv in^2	Ast-eff in^2
2.9	92.1	120	281.2	9589.9	250	9.24	18.72	18.72	9.24	12.00	12.00
			-1997.7	-6202.0	49	9.24	18.72	18.72	9.24	12.00	12.00
11.1	100.3	120	6760.0	9589.9	50	17.45	18.72	18.72	9.24	12.00	12.00
			0.0	-6202.0	0	9.24	18.72	18.72	9.24	12.00	12.00
18.1	107.4	120	2904.6	9589.9	300	9.24	18.72	18.72	9.24	12.00	12.00
			-3904.6	-6202.0	17	9.24	18.72	18.72	10.04	12.00	12.00

Span 7: From 110.25 ft To 115.50 ft

Loc ft	AbsLoc ft	H in	Mmax Mmin kips-ft	Mr kips-ft	Comb	Asb-req in^2	Asb-prv in^2	Asb-eff in^2	Ast-req in^2	Ast-prv in^2	Ast-eff in^2
2.9	113.1	120	0.0	9523.1	0	9.24	18.72	18.59	9.24	12.00	12.00
			-37.4	-6202.0	1	9.24	18.72	18.69	9.24	12.00	12.00

SHEAR AND TORSION DESIGN:



				Sheet #	4
				Job #	Job WLXM2620 - 3094
Program:	LEAP® RC-PIER® V8i (SELECTseries 7)	Jacobs Engineering Group		Designed	DMS
Version:	14.01.00.01	Copyright © Bentley Systems, Inc. 2014		Date	Jun/20/2016
		www.bentley.com	Phone: 1-800-778-4277	Checked	<i>KAK</i>
File Name:	PIER_2_COLUMN_SEISMIC_Drilled Shaft.rcp			Date	<i>7/11/16</i>

Span 1: From 0.00 ft To 5.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips- ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s in^2/ft	2Ats/s in^2/ft	Av/s in^2/ft	Aprv/s in^2/ft	Alx in^2	Vc kips	Vs kips	Beta	Theta deg
2.37	2.37	L	31.6	1	0.0	0	1657.6	1092.0	0.00	0.00	0.00	1.24	0.00	1134.22	707.53	2.00	45.00

Span 2: From 5.25 ft To 26.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips- ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s in^2/ft	2Ats/s in^2/ft	Av/s in^2/ft	Aprv/s in^2/ft	Alx in^2	Vc kips	Vs kips	Beta
2.88	8.13	R	1190.9	68	241.5	64	1659.2	1092.0	0.99	0.00	0.99	1.24	11.20	1135.36	708.24	2.00
9.92	15.17	L	1097.2	68	349.2	31	1659.2	1092.0	0.99	0.00	0.99	1.24	13.64	1135.36	708.24	2.00
		R	1015.1	16	183.9	11	1657.1	1092.0	0.99	0.00	0.99	1.24	7.89	1133.87	707.31	2.00
18.12	23.37	L	1124.3	16	319.5	63	1659.2	1092.0	0.99	0.00	0.99	1.24	3.96	1135.36	708.24	2.00

Span 3: From 26.25 ft To 47.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips- ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s in^2/ft	2Ats/s in^2/ft	Av/s in^2/ft	Aprv/s in^2/ft	Alx in^2	Vc kips	Vs kips	Beta
2.88	29.13	R	737.6	47	350.4	43	1659.2	1092.0	0.99	0.00	0.99	1.24	0.08	1135.36	708.24	2.00
13.25	39.50	L	599.4	47	350.4	33	1659.2	1092.0	0.99	0.00	0.99	1.24	2.21	1135.36	708.24	2.00
		R	1400.1	17	386.8	13	1657.1	1092.0	0.99	0.00	0.99	1.24	9.92	1133.87	707.31	2.00
18.12	44.37	L	1464.9	17	386.8	63	1659.2	1092.0	0.99	0.00	0.99	1.24	10.42	1135.36	708.24	2.00

Span 4: From 47.25 ft To 68.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips- ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s in^2/ft	2Ats/s in^2/ft	Av/s in^2/ft	Aprv/s in^2/ft	Alx in^2	Vc kips	Vs kips	Beta
2.88	50.13	R	1780.9	50	470.7	43	2296.7	1092.0	1.48	0.00	1.48	2.48	12.06	1135.36	1416.49	2.00
4.42	51.67	L	1760.4	50	470.7	33	2293.7	1092.0	1.44	0.00	1.44	2.48	4.75	1133.87	1414.63	2.00
		R	314.6	150	184.5	83	2296.7	1092.0	0.00	0.00	0.00	2.48	0.00	1135.36	1416.49	2.00
16.58	63.83	L	299.8	9	184.5	303	2296.7	1092.0	0.00	0.00	0.00	2.48	0.00	1135.36	1416.49	2.00
		R	1785.8	20	470.7	13	2293.7	1092.0	1.49	0.00	1.49	2.48	7.93	1133.87	1414.63	2.00
18.12	65.37	L	1806.3	20	470.7	63	2296.7	1092.0	1.53	0.00	1.53	2.48	11.74	1135.36	1416.49	2.00

Span 5: From 68.25 ft To 89.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips- ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s in^2/ft	2Ats/s in^2/ft	Av/s in^2/ft	Aprv/s in^2/ft	Alx in^2	Vc kips	Vs kips	Beta
2.88	71.13	R	1471.4	50	295.8	43	1659.2	1092.0	0.99	0.00	0.99	1.24	14.87	1135.36	708.24	2.00
7.75	76.00	L	1406.5	50	295.8	33	1659.2	1092.0	0.99	0.00	0.99	1.24	14.88	1135.36	708.24	2.00
		R	584.5	20	259.3	13	1657.1	1092.0	0.99	0.00	0.99	1.24	0.00	1133.87	707.31	2.00
18.12	86.37	L	722.6	20	259.3	63	1659.2	1092.0	0.99	0.00	0.99	1.24	0.00	1135.36	708.24	2.00

Span 6: From 89.25 ft To 110.25 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips-ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s in^2/ft	2Ats/s in^2/ft	Av/s in^2/ft	Aprv/s in^2/ft	Alx in^2	Vc kips	Vs kips	Beta
2.88	92.13	R	1113.8	50	135.2	43	1659.2	1092.0	0.99	0.00	0.99	1.24	6.11	1135.36	708.24	2.00
11.08	100.33	L	1004.5	50	135.2	33	1659.2	1092.0	0.99	0.00	0.99	1.24	13.35	1135.36	708.24	2.00
		R	1074.2	20	300.5	13	1657.1	1092.0	0.99	0.00	0.99	1.24	7.93	1133.87	707.31	2.00
18.12	107.37	L	1168.0	20	300.5	63	1659.2	1092.0	0.99	0.00	0.99	1.24	10.12	1135.36	708.24	2.00

Span 7: From 110.25 ft To 115.50 ft

Loc ft	AbsLoc ft	Pos	Vu kips	Comb	Tu kips-ft	Comb	phi*Vn kips	T-lim kips-ft	Avs/s in^2/ft	2Ats/s in^2/ft	Av/s in^2/ft	Aprv/s in^2/ft	Alx in^2	Vc kips	Vs kips	Beta	Theta deg
2.88	113.13	R	31.6	1	0.0	0	1659.8	1092.0	0.00	0.00	0.00	1.24	0.00	1135.71	708.46	2.00	45.00

Shear and Torsion Design : Notes

- Pos is the design position. L suggests the calculation is done at immediate left of "Loc" and R suggests at immediate right of it.
- T-lim is the limiting value of torsion for the concrete section. If actual torsion is higher than this value, torsional steel has to be provided.
- Avs/s is the required area of steel per unit length for shear force.
- 2Ats/s is the required area of steel per unit length for two legs of torsional reinforcement.
- Av/s is the total required area of steel per unit length due to shear plus torsion.
- Aprv/s is the total provided area of transverse steel reinforcement.
- Alx is the EFFECTIVE longitudinal steel required in addition to the PROVIDED EFFECTIVE flexural steel.
- Vc is the nominal shear resistance of concrete.
- Vs is the nominal shear resistance of transverse reinforcement.
- Beta is the factor indicating ability of diagonally cracked concrete to transmit tension and shear.
- Theta is the angle of inclination of diagonal compressive stress.
- # Vu is greater than phi*Vn.

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Cover photos: **Upper Left:** Photo taken in Portland, Oregon, at the 2013 AASHTO Bridge Subcommittee meeting during the dinner cruise on the Willamette River, at sunset. This is the Tilicum Crossing used for pedestrian traffic and transit. Photo © Tony Allen 2013. **Upper Right:** Award-winning West 7th Street Bridge, Ft. Worth, Texas. Photo © TxDOT. **Bottom Right:** The new two-mile Route 52 Causeway between Somers Point and Ocean City, NJ; completed in 2012, it is one of the largest bridges constructed by NJDOT in South Jersey. Photo provided by Stokes Creative Group, Inc.

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lower-bound methods. The upper-bound solutions approach the resistance from the unconservative side, while lower-bound solutions approach the resistance from the conservative side. STM is a lower-bound design method. As such, it adheres to these principles: (1) the truss model is in equilibrium with external forces, and (2) the concrete element has enough deformation capacity to accommodate the assumed distribution of forces (Schlaich et al., 1987). Proper anchorage of the reinforcement is required. Additionally, the compressive forces in the concrete must not exceed the factored strut capacities, and the tensile forces within the strut-and-tie model must not exceed the factored tie capacities.

The STM recognizes the significance of how the loads are introduced into a disturbed region and how that region is supported, and is based upon the assumption of straight line trajectories of internal stresses due to significant cracking beyond service loads. This method is also applicable to both B- and D-Regions, but it is typically not practical to apply the method to B-Regions.

5.5.2—Service Limit State

Actions to be considered at the service limit state shall be cracking, deformations, and concrete stresses, as specified in Articles 5.6.7, 5.6.3.5, and 5.9.2.3, respectively.

The cracking stress shall be taken as the modulus of rupture specified in Article 5.4.2.6.

5.5.3—Fatigue Limit State

5.5.3.1—General

Fatigue need not be investigated for concrete deck slabs in multigirder applications or reinforced-concrete box culverts.

In regions of compressive stress due to unfactored permanent loads and prestress in reinforced concrete components, fatigue shall be considered only if this compressive stress is less than the maximum tensile live load stress resulting from the Fatigue I load combination as specified in Table 3.4.1-1 in combination with the provisions of Article 3.6.1.4.

Fatigue of the reinforcement need not be checked for prestressed components designed to have extreme fiber tensile stress due to Service III Limit State within the tensile stress limit specified in Table 5.9.2.3.2b-1. Structural components with a combination of prestressing strands and reinforcing bars that allow the tensile stress in the concrete to exceed the Service III limit specified in Table 5.9.2.3.2b-1 shall be checked for fatigue.

C5.5.3.1

Stresses measured in concrete deck slabs of bridges in service are far below infinite fatigue life, most probably due to internal arching action; see Article C9.7.2.

Fatigue evaluation for reinforced-concrete box culverts showed that the live load stresses in the reinforcement due to Fatigue I load combination did not reduce the member resistance at the strength limit state.

In determining the need to investigate fatigue, Table 3.4.1-1 specifies a load factor of 1.50 on the live load force effect resulting from the fatigue truck for the Fatigue I load combination. This factored live load force effect represents the greatest fatigue stress that the bridge will experience during its life.

Fatigue limit state load factor, girder distribution factors, and dynamic allowance cause fatigue limit state stress to be considerably less than the corresponding value determined from Service Limit State III. For prestressed components, the net concrete stress is usually significantly less than the concrete tensile stress limit specified in Table 5.9.2.3.2b-1. Therefore, the calculated flexural stresses are significantly reduced. For this situation, the calculated steel stress range, which is equal to the modular ratio times the concrete stress

For fatigue considerations, concrete members shall satisfy:

$$\gamma(\Delta f) \leq (\Delta F)_{TH} \quad (5.5.3.1-1)$$

where:

- γ = load factor specified in Table 3.4.1-1 for the Fatigue I load combination
- Δf = force effect, live load stress range due to the passage of the fatigue load as specified in Article 3.6.1.4 (ksi)
- $(\Delta F)_{TH}$ = constant-amplitude fatigue threshold, as specified in Article 5.5.3.2, 5.5.3.3, or 5.5.3.4, as appropriate (ksi)

For prestressed components in other than segmentally constructed bridges, the compressive stress due to the Fatigue I load combination and one-half the sum of the unfactored effective prestress and permanent loads shall not exceed $0.40f'_c$ after losses.

The section properties for fatigue investigations shall be based on cracked sections where the sum of stresses, due to unfactored permanent loads and prestress, and the Fatigue I load combination is tensile and exceeds $0.095\sqrt{f'_c}$.

5.5.3.2—Reinforcing Bars and Welded Wire Reinforcement

The constant-amplitude fatigue threshold, $(\Delta F)_{TH}$, for straight reinforcement and welded wire reinforcement without a cross weld in the high-stress region shall be taken as:

$$(\Delta F)_{TH} = 26 - \frac{22f_{min}}{f_y} \quad (5.5.3.2-1)$$

The constant-amplitude fatigue threshold, $(\Delta F)_{TH}$, for straight welded wire reinforcement with a cross weld in the high-stress region shall be taken as:

$$(\Delta F)_{TH} = 18 - 0.36f_{min} \quad (5.5.3.2-2)$$

where:

- f_{min} = minimum live-load stress resulting from the Fatigue I load combination, combined with the more severe stress from either the unfactored permanent loads or the unfactored permanent loads, shrinkage, and creep-induced external loads; positive if tension, negative if compression (ksi)

range, is almost always less than the steel fatigue stress range limit specified in Article 5.5.3.3.

C5.5.3.2

With the permitted use of steel reinforcement having yield stresses above 75.0 ksi, the value of f_{min} is expected to increase. In previous versions of Eq. 5.5.3.2-1, an increase in f_{min} would result in an decrease in $(\Delta F)_{TH}$, regardless of the yield strength of the bar. Current data indicates that steel with a higher yield strength actually has a higher fatigue limit (DeJong and MacDougall, 2006). Eq. 5.5.3.2-1 has been calibrated such that there is no change to the value of $(\Delta F)_{TH}$ from earlier versions of this equation for cases of $f_y = 60.0$ ksi, but it now provides more reasonable values of $(\Delta F)_{TH}$ for higher strength reinforcing bars. The values of 60.0 and 100 ksi are limits of substitution into Eq. 5.5.3.2-1, not a prohibition on providing reinforcement with other yield strengths.

Structural welded wire reinforcement has been increasingly used in bridge applications in recent years, especially as auxiliary reinforcement in bridge I- and box beams and as primary reinforcement in slabs. Design for shear has traditionally not included a fatigue check of the reinforcement as the member is expected to be uncracked under service conditions and the stress range in steel minimal. The stress range for steel bars has existed in previous editions. It is based on Helgason et al. (1976). The simplified form in this edition replaces

f_y = specified minimum yield strength of reinforcement, not to be taken less than 60.0 ksi nor greater than 100 ksi

The definition of the high-stress region for application of Eqs. 5.5.3.2-1 and 5.5.3.2-2 for flexural reinforcement shall be taken as one-third of the span on each side of the section of maximum moment.

5.5.3.3—Prestressing Steel

The constant-amplitude fatigue threshold, $(\Delta F)_{TH}$, for prestressing steel shall be taken as:

- 18.0 ksi for radii of curvature in excess of 30.0 ft, and
- 10.0 ksi for radii of curvature not exceeding 12.0 ft.

A linear interpolation may be used for radii between 12.0 and 30.0 ft.

5.5.3.4—Welded or Mechanical Splices of Reinforcement

For welded or mechanical connections that are subject to repetitive loads, the constant-amplitude fatigue threshold, $(\Delta F)_{TH}$, shall be as given in Table 5.5.3.4-1.

Table 5.5.3.4-1—Constant-Amplitude Fatigue Threshold of Splices

Type of Splice	$(\Delta F)_{TH}$ for greater than 1,000,000 cycles
Grout-filled sleeve, with or without epoxy-coated bar	18.0 ksi
Cold-swaged coupling sleeves without threaded ends and with or without epoxy-coated bar; Integrally-forged coupler with upset NC threads; Steel sleeve with a wedge; One-piece taper-threaded coupler; and Single V-groove direct butt weld	12.0 ksi
All other types of splices	4.0 ksi

Where the total cycles of loading, N , as specified in Eq. 6.6.1.2.5-2, are less than one million, $(\Delta F)_{TH}$ in Table 5.5.3.4-1 may be increased by the quantity $24(6 - \log N)$ ksi to a total not greater than the value given by Eq. 5.5.3.2-1 in Article 5.5.3.2. Higher values of $(\Delta F)_{TH}$, up to the value given by Eq. 5.5.3.2-1, may be used if justified by fatigue test data on splices that are the same as those that will be placed in service.

the (r/h) parameter with the default value 0.3 recommended by Helgason et al. (1976). Inclusion of limits for welded wire reinforcement is based on research by Hawkins et al. (1971, 1987) and Amorn et al. (2007).

Since the fatigue provisions were developed based primarily on ASTM A615 steel reinforcement, their applicability to other types of reinforcement is largely unknown.

C5.5.3.3

Where the radius of curvature is less than shown, or metal-to-metal fretting caused by prestressing tendons rubbing on hold-downs or deviations is apt to be a consideration, it will be necessary to consult the literature for more complete presentations that will allow the increased bending stress in the case of sharp curvature, or fretting, to be accounted for in the development of permissible fatigue stress ranges. Metal-to-metal fretting is not normally expected to be a concern in conventional pretensioned beams.

C5.5.3.4

Review of the available fatigue and static test data indicates that any splice, that develops 125 percent of the yield strength of the bar will sustain one million cycles of a 4.0 ksi constant amplitude stress range. This lower limit is a close lower bound for the splice fatigue data obtained in NCHRP Project 10-35, and it also agrees well with the limit of 4.5 ksi for Category E from the provisions for fatigue of structural steel weldments. The strength requirements of Articles 5.10.8.4.2b and 5.10.8.4.2c also will generally ensure that a welded splice or mechanical connector will also meet certain minimum requirements for fabrication and installation, such as sound welding and proper dimensional tolerances. Splices that do not meet these requirements for fabrication and installation may have reduced fatigue performance. Further, splices designed to the lesser force requirements of Article 5.10.8.4.3b may not have the same fatigue performance as splices designed for the greater force requirement. Consequently, the minimum strength requirement indirectly provides for a minimum fatigue performance.

It was found in NCHRP Project 10-35, “Fatigue Behavior of Welded and Mechanical Splices in Reinforcing Steel”, that there is substantial variation in the fatigue performance of different types of welds and connectors. However, all types of splices appeared to exhibit a constant amplitude fatigue limit for repetitive loading exceeding about one million cycles. The stress ranges for over one million cycles of loading given in Table 5.5.3.4-1 are based on statistical tolerance limits to constant amplitude staircase test data, such that there is a 95 percent level of confidence that 95 percent of the data would exceed the given values for five million cycles of

5.7.4—Interface Shear Transfer—Shear Friction

5.7.4.1—General

Interface shear transfer shall be considered across a given plane at:

- An existing or potential crack;
- An interface between dissimilar materials;
- An interface between two concretes cast at different times; or
- The interface between different elements of the cross-section.

Where the required interface shear reinforcement in girder/slab design exceeds the area required to satisfy flexural shear requirements, additional reinforcement shall be provided to satisfy the interface shear requirements. The additional interface shear reinforcement need only extend into the girder a sufficient depth to develop the design yield stress of the reinforcement rather than extending the full depth of the girder as is required for vertical shear reinforcement.

Reinforcement for interface shear may consist of single bars, multiple leg stirrups, or welded wire reinforcement.

All reinforcement present where interface shear transfer is to be considered shall be fully developed on both sides of the interface by embedment, hooks, mechanical methods such as headed studs or welding to develop the design yield stress.

5.7.4.2—Minimum Area of Interface Shear Reinforcement

Except as provided herein, the cross-sectional area of the interface shear reinforcement, A_{vf} , crossing the interface area, A_{cv} , shall satisfy:

$$A_{vf} \geq \frac{0.05A_{cv}}{f_y} \quad (5.7.4.2-1)$$

where:

- A_{cv} = area of concrete considered to be engaged in interface shear transfer (in.²)
- A_{vf} = area of interface shear reinforcement crossing the shear plane within the area A_{cv} (in.²)
- f_y = yield stress of reinforcement but design value not to exceed 60.0 (ksi)

For a cast-in-place concrete slab on clean concrete girder surfaces free of laitance, the following provisions shall apply:

C5.7.4.1

Shear displacement along an interface plane may be resisted by cohesion, aggregate interlock, and shear-friction developed by the force in the reinforcement crossing the plane of the interface. Roughness of the shear plane causes interface separation in a direction perpendicular to the interface plane. This separation induces tension in the reinforcement balanced by compressive stresses on the interface surfaces.

Any reinforcement crossing the interface is subject to the same strain as the designed interface reinforcement. Insufficient anchorage of any reinforcement crossing the interface could result in localized fracture of the surrounding concrete.

C5.7.4.2

For a girder/slab interface, the minimum area of interface shear reinforcement per foot of girder length is calculated by replacing A_{cv} in Eq. 5.7.4.2-1 with $12b_{vi}$.

Previous editions of these specifications have required a minimum area of reinforcement based on the full interface area; similar to Eq. 5.7.4.2-1, irrespective of the need to mobilize the strength of the full interface

- The minimum interface shear reinforcement, A_{vf} , need not exceed the lesser of the amount determined using Eq. 5.7.4.2-1 and the amount needed to resist $1.33V_{ui}/\phi$ as determined using Eq. 5.7.4.3-3.
- The minimum reinforcement provisions specified herein shall be waived for girder/slab interfaces with surface roughened to an amplitude of 0.25 in. where the factored interface shear stress, v_{ui} of Eq. 5.7.4.5-1, is less than 0.210 ksi, and all vertical (transverse) shear reinforcement required by the provisions of Article 5.7.2.5 is extended across the interface and adequately anchored in the slab.

5.7.4.3—Interface Shear Resistance

The factored interface shear resistance, V_{ri} , shall be taken as:

$$V_{ri} = \phi V_{ni} \quad (5.7.4.3-1)$$

and the design shall satisfy:

$$V_{ri} \geq V_{ui} \quad (5.7.4.3-2)$$

where:

- V_{ni} = nominal interface shear resistance (kip)
- V_{ui} = factored interface shear force due to total load based on the applicable strength and extreme event load combinations in Table 3.4.1-1 (kip)
- ϕ = resistance factor for shear specified in Article 5.5.4.2. For the extreme limit state event ϕ may be taken as 1.0.

The nominal shear resistance of the interface plane shall be taken as:

$$V_{ni} = cA_{cv} + \mu (A_{vf}f_y + P_c) \quad (5.7.4.3-3)$$

The nominal shear resistance, V_{ni} , used in the design shall not exceed either of the following:

$$V_{ni} \leq K_1 f'_c A_{cv}, \quad (5.7.4.3-4)$$

$$V_{ni} \leq K_2 A_{cv} \quad (5.7.4.3-5)$$

area to resist the applied factored interface shear. In 2006, the additional minimum area provisions, applicable only to girder/slab interfaces, were introduced. The intent of these provisions was to eliminate the need for additional interface shear reinforcement due simply to a beam with a wider top flange being utilized in place of a narrower flanged beam.

The additional provision establishes a rational upper bound for the area of interface shear reinforcement required based on the interface shear demand rather than the interface area as stipulated by Eq. 5.7.4.2-1. This treatment is analogous to minimum reinforcement provisions for flexural capacity where a minimum additional overstrength factor of 1.33 is required beyond the factored demand.

With respect to a girder/slab interface, the intent is that the portion of the reinforcement required to resist vertical shear which is extended into the slab also serves as interface shear reinforcement.

C5.7.4.3

Total load shall include all noncomposite and composite loads appropriate to the interface being investigated.

A pure shear friction model assumes interface shear resistance is directly proportional to the net normal clamping force ($A_{vf}f_y + P_c$), through a friction coefficient (μ). Eq. 5.7.4.3-3 is a modified shear-friction model accounting for a contribution, evident in the experimental data, from cohesion and/or aggregate interlock depending on the nature of the interface under consideration given by the first term. For simplicity, the term “cohesion factor” is used throughout the body of this Article to capture the effects of cohesion and/or aggregate interlock such that Eq. 5.7.4.3-3 is analogous to the vertical shear resistance expression of $V_c + V_s$.

in which:

$$A_{cv} = b_{vi} L_{vi} \quad (5.7.4.3-6)$$

where:

- b_{vi} = interface width considered to be engaged in shear transfer (in.)
- L_{vi} = interface length considered to be engaged in shear transfer (in.)
- c = cohesion factor specified in Article 5.7.4.4 (ksi)
- μ = friction factor specified in Article 5.7.4.4

P_c = permanent net compressive force normal to the shear plane; if force is tensile, $P_c = 0.0$ (kip)

f'_c = design concrete compressive strength of the weaker concrete on either side of the interface (ksi)

K_1 = fraction of concrete strength available to resist interface shear, as specified in Article 5.7.4.4.

K_2 = limiting interface shear resistance specified in Article 5.7.4.4 (ksi)

If a member has transverse reinforcement with a specified minimum yield strength greater than 60.0 ksi for flexural shear resistance, interface reinforcement may be provided by extending the transverse reinforcement across the interface zone. In this case, the value of f_y in Eq. 5.7.4.3-3 shall not be taken as greater than 60.0 ksi.

5.7.4.4—Cohesion and Friction Factors

The following values shall be taken for cohesion, c , and friction factor, μ :

Eq. 5.7.4.3-4 limits V_{ni} to prevent crushing or shearing of aggregate along the shear plane.

Eqs. 5.7.4.3-3 and 5.7.4.3-4 are sufficient, with an appropriate value for K_1 , to establish a lower bound for the available experimental data; however, Eq. 5.7.4.3-5 is necessitated by the sparseness of available experimental data beyond the limiting K_2 values provided in Article 5.7.4.4.

The interface shear strength Eqs. 5.7.4.3-3, 5.7.4.3-4, and 5.7.4.3-5 are based on experimental data for normal weight, nonmonolithic concrete strengths ranging from 2.5 ksi to 16.5 ksi; normal weight, monolithic concrete strengths from 3.5 ksi to 18.0 ksi; and lightweight concrete strengths from 2.0 ksi to 6.0 ksi.

A_{vf} used in Eq. 5.7.4.3-3 is the interface shear reinforcement within the interface area A_{cv} . For a girder/slab interface, the area of the interface shear reinforcement per foot of girder length is calculated by replacing A_{cv} in Eq. 5.7.4.3-3 with $12b_{vi}$ and P_c corresponding to the same one foot of girder length.

In consideration of the use of stay-in-place deck panels, or any other interface details, the Designer shall determine the width of interface, b_{vi} , effectively acting to resist interface shear.

The interface reinforcement is assumed to be stressed to its design yield stress, f_y . However, f_y used in determining the interface shear resistance is limited to 60.0 ksi because interface shear resistance computed using higher values have overestimated the interface shear resistance experimentally determined in a limited number of tests of pre-cracked specimens.

It is conservative to neglect P_c if it is compressive, however, if included, the value of P_c shall be computed as the force acting over the area, A_{cv} . If P_c is tensile, additional reinforcement is required to resist the net tensile force as specified in Article 5.7.4.5.

C5.7.4.4

The values presented provide a lower bound of the substantial body of experimental data available in the literature (Loov and Patnaik, 1994; Patnaik, 1999;

- For a cast-in-place concrete slab on clean concrete girder surfaces, free of laitance with surface roughened to an amplitude of 0.25 in.

$$\begin{aligned}c &= 0.28 \text{ ksi} \\ \mu &= 1.0 \\ K_1 &= 0.3 \\ K_2 &= 1.8 \text{ ksi for normal weight concrete} \\ &= 1.3 \text{ ksi for lightweight concrete}\end{aligned}$$

- For normal weight concrete placed monolithically:

$$\begin{aligned}c &= 0.40 \text{ ksi} \\ \mu &= 1.4 \\ K_1 &= 0.25 \\ K_2 &= 1.5 \text{ ksi}\end{aligned}$$

- For lightweight concrete placed monolithically, or placed against a clean concrete surface, free of laitance with surface intentionally roughened to an amplitude of 0.25 in.:

$$\begin{aligned}c &= 0.24 \text{ ksi} \\ \mu &= 1.0 \\ K_1 &= 0.25 \\ K_2 &= 1.0 \text{ ksi}\end{aligned}$$

- For normal weight concrete placed against a clean concrete surface, free of laitance, with surface intentionally roughened to an amplitude of 0.25 in.:

$$\begin{aligned}c &= 0.24 \text{ ksi} \\ \mu &= 1.0 \\ K_1 &= 0.25 \\ K_2 &= 1.5 \text{ ksi}\end{aligned}$$

- For concrete placed against a clean concrete surface, free of laitance, but not intentionally roughened:

$$\begin{aligned}c &= 0.075 \text{ ksi} \\ \mu &= 0.6 \\ K_1 &= 0.2 \\ K_2 &= 0.8 \text{ ksi}\end{aligned}$$

- For concrete anchored to as-rolled structural steel by headed studs or by reinforcing bars where all steel in contact with concrete is clean and free of paint:

$$\begin{aligned}c &= 0.025 \text{ ksi} \\ \mu &= 0.7 \\ K_1 &= 0.2 \\ K_2 &= 0.8 \text{ ksi}\end{aligned}$$

For brackets, corbels, and ledges, the cohesion factor, c , shall be taken as 0.0.

Mattock, 2001; Slapkus and Kahn, 2004). Furthermore, the inherent redundancy of girder/slab bridges distinguishes this system from other structural interfaces.

The values presented apply strictly to monolithic concrete. These values are not applicable for situations where a crack may be anticipated to occur at a service limit state.

The factors presented provide a lower bound of the experimental data available in the literature (Hofbeck, Ibrahim, and Mattock, 1969; Mattock, Li, and Wang, 1976; Mitchell and Kahn, 2001).

Available experimental data demonstrates that only one modification factor is necessary, when coupled with the resistance factors of Article 5.5.4.2, to accommodate lightweight concrete with lightweight fine aggregate and normal weight fine aggregate. This deviates from earlier specifications that distinguished between different types of lightweight concrete.

Due to the absence of existing data, the prescribed cohesion and friction factors for lightweight concrete placed against hardened concrete are accepted as conservative for application to monolithic lightweight concrete.

Tighter constraints have been adopted for roughened interfaces, other than cast-in-place slabs on roughened girders, even though available test data does not indicate more severe restrictions are necessary. This is to account for variability in the geometry, loading and lack of redundancy at other interfaces.

Since the effectiveness of cohesion and aggregate interlock along a vertical crack interface is unreliable the

5.7.4.5—Computation of the Factored Interface Shear Force for Girder/Slab Bridges

Based on consideration of a free body diagram and utilizing the conservative envelope value of V_{u1} , the factored interface shear stress for a concrete girder/slab bridge may be determined as:

$$v_{ui} = \frac{V_{u1}}{b_{vi} d_v} \quad (5.7.4.5-1)$$

where:

d_v = distance between the centroid of the tension steel and the mid-thickness of the slab to compute a factored interface shear stress

The factored interface shear force in kips/ft for a concrete girder/slab bridge may be determined as:

$$V_{ui} = v_{ui} A_{cv} = v_{ui} 12 b_{vi} \quad (5.7.4.5-2)$$

If the net force, P_c , across the interface shear plane is tensile, additional reinforcement, A_{vpc} , shall be provided as:

$$A_{vpc} = \frac{P_c}{\phi f_y} \quad (5.7.4.5-3)$$

cohesion component in Eq. 5.7.4.3-3 is set to 0.0 for brackets, corbels, and ledges.

C5.7.4.5

The following illustrates a free body diagram approach to computation of interface shear in a girder/slab bridge. In reinforced concrete, or prestressed concrete, girder bridges, with a cast-in-place slab, horizontal shear forces develop along the interface between the girders and the slab. The classical strength of materials approach, which is based on elastic behavior of the section, has been used successfully in the past to determine the design interface shear force. As an alternative to the classical elastic strength of materials approach, a reasonable approximation of the factored interface shear force at the strength or extreme event limit state for either elastic or inelastic behavior and cracked or uncracked sections, can be derived with the defined notation and the free body diagram shown in Figure C5.7.4.5-1 as follows:

M_{u2} = maximum factored moment at section 2 (kip-in.)

V_1 = factored vertical shear at section 1 concurrent with M_{u2} (kip)

M_1 = factored moment at section 1 concurrent with M_{u2} (kip-in.)

$\Delta \ell$ = unit length segment of girder (in.)

C_1 = compression force above the shear plane associated with M_1 (kip)

C_{u2} = compression force above the shear plane associated with M_{u2} (kip)

$$M_{u2} = M_1 + V_1 \Delta \ell \quad (C5.7.4.5-1)$$

$$C_{u2} = \frac{M_{u2}}{d_v} \quad (C5.7.4.5-2)$$

$$C_{u2} = \frac{M_1}{d_v} + \frac{V_1 \Delta \ell}{d_v} \quad (C5.7.4.5-3)$$

$$C_1 = \frac{M_1}{d_v} \quad (C5.7.4.5-4)$$

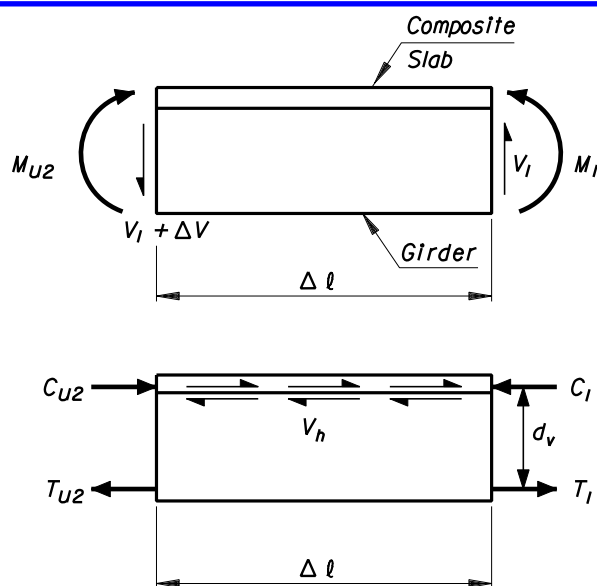


Figure C5.7.4.5-1—Free Body Diagrams

$$V_h = C_{U2} - C_I \quad (\text{C5.7.4.5-5})$$

$$V_h = \frac{V_I \Delta \ell}{d_v} \quad (\text{C5.7.4.5-6})$$

Such that for a unit length segment:

$$V_{hi} = \frac{V_I}{d_v} \quad (\text{C5.7.4.5-7})$$

where:

V_{hi} = factored interface shear force per unit length (kips/length)

The variation of V_I over the length of any girder segment reflects the shear flow embodied in the classical strength of materials approach. For simplicity of design, V_I can be conservatively taken as V_{u1} (since V_{u1} , the maximum factored vertical shear at section 1, is not likely to act concurrently with the factored moment at section 2); and further, the depth, d_v , can be taken as the distance between the centroid of the tension steel and the mid-thickness of the slab to compute a factored interface shear stress.

For design purposes, the computed factored interface shear stress of Eq. 5.7.4.5-1 is converted to a resultant interface shear force computed with Eq. 5.7.4.5-2 acting over an area, A_{cv} , within which the computed area of reinforcement, A_{vf} , shall be located. The resulting area of reinforcement, A_{vf} , then defines the area of interface reinforcement required per foot of girder for direct comparison with vertical shear reinforcement requirements.

Recent research (Markowski et al., 2005; Tadros and Girgis, 2006; Badie and Tadros, 2008; Sullivan et

For beams or girders, the longitudinal center-to-center spacing of nonwelded interface shear connectors

shall not exceed 48.0 in. or the depth of the member, h . For cast-in-place box girders, the longitudinal center-to-center spacing of nonwelded interface shear connectors shall not exceed 24.0 in.

5.7.4.6—Interface Shear in Box Girder Bridges

Adequate shear transfer reinforcement shall be provided at the web/flange interfaces in box girders to transfer flange longitudinal forces at the strength limit state. Consideration shall be given to any construction joints at the interfaces, as well as the amount of reinforcing present in the flange and web for other design purposes.

5.8—DESIGN OF D-REGIONS

5.8.1—General

Refined analysis methods or strut-and-tie method may be used to determine internal force effects in disturbed regions such as those near supports and the points of application of concentrated loads at strength and extreme event limit states.

5.8.2—Strut-and-Tie Method (STM)

5.8.2.1—General

The STM may be used to determine internal force effects near supports and the points of application of concentrated loads at strength and extreme event limit states.

The STM should be considered for the design of deep footings and pile caps or other situations in which the distance between the centers of applied load and the

al., 2011) has demonstrated that increasing interface shear connector spacing from 24.0 to 48.0 in. has resulted in no deficiency in composite action for the same resistance of shear connectors per foot, and girder and deck configurations. These research projects have independently demonstrated no vertical separation between the girder top and the deck under cyclic or ultimate loads. However, the research did not investigate relatively shallow members; hence, the additional limitation related to the member depth is provided.

As the spacing of connector groups increases, the capacities of the concrete and grout in their vicinity become more critical and need to be carefully verified. This applies to all connected elements at the interface. Eqs. 5.7.4.3-2 and 5.7.4.3-3 are intended to ensure that the capacity of the concrete component of the interface is adequate. Methods to enhance that capacity, if needed, include use of high-strength materials and of localized confinement reinforcement.

C5.7.4.6

The factored design force for the interface reinforcement is calculated to account for the interface shear force as well as any localized shear effects due to the prestressing force anchorages at the section.

Historically, vertical planes at the web/flange interface have been checked for segmental bridges. If a horizontal construction joint is present, the interface shear check should also include the horizontal planes at the construction joints. This is a check that enough reinforcing is present. Additional reinforcing need not be added if there is already enough reinforcing present for other purposes, such as global shear and torsion in the cross-section and transverse bending.

C5.8.2.1

Traditional section-by-section design is based on the assumption that the reinforcement required at a particular section depends only on the independent values of the factored section force effects V_u , M_u , and T_u and does not consider the manner in which the loads and reactions are applied which generate these sectional forces. The traditional method further assumes that the



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- (a) Equation (16-8), with $K_1 = 400$ psi, and
 (b) Equation (16-12), with $k = 0.5$, for initially cracked concrete

The test data are compared with the nominal strengths, with $\phi = 1.0$. The specimens had concrete strengths ranging from 3840 psi to 4510 psi.

Test data for push-off specimens with a precracked interface [16-1] and an average concrete strength of 4060 psi are plotted in Fig. 16-9, along with data from tests of composite beams with average concrete strengths of 5710 psi for the webs and 5160 psi for the flanges [16-5]. The nominal strengths computed from Eq. (16-12), with $k = 0.5$ for a precracked interface, and $f'_c = 4000$ psi, fit the data quite well.

EXAMPLE 16-1 Design of the Reinforcement in the Bearing Region of a Precast Beam

Figure 16-10 shows the support region of a precast concrete beam. The factored beam reactions are 62 kips vertical force and a horizontal tension force of 12 kips. The horizontal force arises from restraint of the shrinkage of the precast beam. The cross section of the beam is 12 in. wide by 18 in. deep. Use $f'_c = 4000$ psi, assume normal-density concrete, and use $f_y = 60,000$ psi.

1. **Assume the cracked plane.** The crack plane giving the maximum area, A_c , is a vertical crack. This will tend to overestimate the cohesion component. Assume that the support region of the beam is enclosed by a 6-in. $\times$ 6-in. structural steel angle, as shown in Fig. 16-10, and assume that the crack is at 60° to the horizontal. It intercepts the end of the beam at 10.2 in. above the bottom and has a length of 12 in. We shall take $A_c = 12 \text{ in.} \times 12 \text{ in.} = 144 \text{ in.}^2$.

2. **Compute the area of steel required.** Resolving the forces onto the inclined plane gives a normal force of 20.6 kips compression and a shear force of 59.7 kips for a 60° plane. Each assumed crack angle will result in a different combination of normal and shear forces. However, it is quick and conservative to assume that the shear force is equal to the vertical reaction of 62 kips and that the normal force is equal to the horizontal reaction $N_u = -12$ kips (negative in tension). In addition, we shall assume that $\alpha_f = 90^\circ$.

From Eq. (16-2),

$$V_n = A_{vf} f_y \mu$$

We want $V_n \geq \phi V_u$, so

$$A_{vf} \geq \frac{V_u}{\phi f_y \mu}$$

where $V_u = 62$ kips, $\mu = 1.4\lambda$ (the crack plane is in monolithically placed concrete), and $\lambda = 1.0$ (normal-weight concrete is used). We thus have

$$A_{vf} = \frac{62 \text{ kips}}{0.75 \times 60 \text{ ksi} \times 1.4} = 0.984 \text{ in.}^2$$

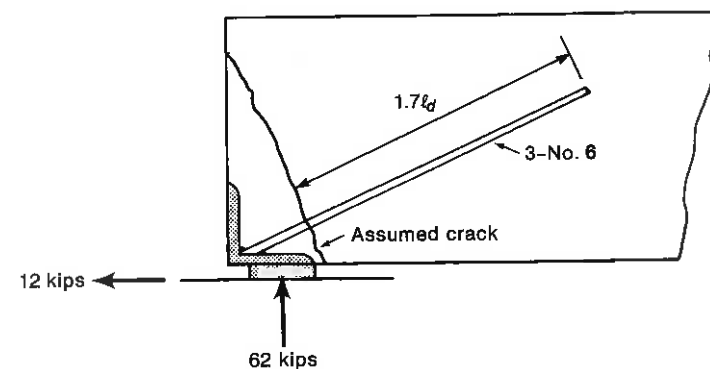


Fig. 16-10
Example 16-1.

We must confirm that the required value of V_n , V_u/ϕ , does not exceed the upper limit given in ACI Code Section 11.6.5. The required value of V_n is

$$V_n = V_u/\phi = 62 \text{ kips}/0.75 = 82.7 \text{ kips}$$

The value for the stress acting on the effective concrete area resisting shear transfer, A_c , is limited in ACI Code Section 11.6.5 to the smallest of

$$0.2f'_c = 0.2 \times 4000 \text{ psi} = 800 \text{ psi}$$

$$480 \text{ psi} + 0.08f'_c = 480 + 0.08 \times 4000 = 800 \text{ psi}$$

or

$$1600 \text{ psi}$$

Thus, the limiting stress is 800 psi, and the upper limit on V_n is

$$V_n \leq (800 \text{ psi})A_c = 800 \text{ psi} \times 144 \text{ in.}^2 = 115 \text{ kips}$$

The required value for V_n does not exceed this value, so we do not need to increase the effective section area resisting the factored shear force.

The tensile force must also be transferred across the crack by reinforcement, as calculated using Eq. (16-4),

$$A_n = \frac{12 \text{ kips}}{0.75 \times 60 \text{ ksi}} = 0.267 \text{ in.}^2$$

Therefore, the total steel across the crack must be $(0.984 + 0.267) \text{ in.}^2 = 1.25 \text{ in.}^2$

Provide three No. 6 bars across the assumed crack, $A_s = 1.32 \text{ in.}^2$. These bars must be anchored on both sides of the crack. This is done by welding them to the bearing angle and by extending them $1.7\ell_d$, as recommended in [16-14].

16-3 COMPOSITE CONCRETE BEAMS

Frequently, precast beams or steel beams have a slab cast on top of them and are designed assuming that the slab and beam act as a monolithic unit to support loads. Such a beam-and-slab combination is referred to as a *composite beam*. This discussion will deal only with composite beams where the beam is precast concrete or other concrete cast at an earlier time than the slab.

Shored or Unshored Construction

When the slab concrete is placed, the precast beam can either be shored or unshored. In typical shored construction, the precast beam is placed and must support its own weight. Shores are then added to support the beam and initially resist the weight of the cast-in-place slab. When the strength of the slab concrete is high enough to resist expected stresses, the shores are removed and the slab dead load is resisted by the composite beam and slab. If the precast beam is not shored when the slab is placed, the beam supports its own weight plus the weight of the slab and the slab forms. ACI Code Section 17.2 allows either construction process and requires that each element be strong enough to support all loads it supports by itself. If the beam is shored, ACI Code Section 17.3 requires that the shores be left in place until the composite section has a strength adequate to support all loads and to limit deflections and cracking.

Tests have shown that the ultimate strength of a composite beam is the same whether the member was shored or unshored during construction. For this reason, ACI Code Section 17.2.4 allows strength computations to be made that consider only the final composite member.

Horizontal Shear

In the beam shown in Fig. 16-11a, there are no horizontal shear stresses transferred from the slab to the beam. They act as two independent members. In Fig. 16-11b, horizontal shear stresses act on the interface, and as a result, the slab and beam act in a composite manner. The ACI Code provisions for horizontal shear are given in ACI Code Section 17.5. Although the mechanism of horizontal shear transfer and that of shear friction are similar, if not identical, there is a considerable difference between the two sets of provisions. The difference results from the fact that Eq. (16-8), ACI Code Section 17.5.2.3, and ACI Code Section 11.7 are all empirical attempts to fit test data. Equation (16-8) is valid for relatively short shear planes with lengths up to several feet, but is believed to give shear strengths that are too high for long shear-transfer regions if the maximum stress is localized. It is also unconservative for low values of $\rho_v f_y$, as used in Eq. (16-3).

The term *horizontal shear stress* is used to describe the shear stresses acting on the interface in Fig. 16-11b. In a normal composite beam, these stresses are horizontal. If the beam were vertical, however, the term "horizontal shear" would still be used to distinguish between this shear and the orientation of shear stresses in a beam. Tests of horizontal shear in composite beams are reported in [16-3], [16-5], [16-6], [16-15], and [16-16]. The tests reported in [16-6] included members with and without shear keys along the interface. The presence of shear keys stiffened the connection at low slips but had no significant effect on its strength.

Computation of Horizontal Shear Stress

From strength of materials, the horizontal shear stresses, v_h , on the contact surface between an uncracked elastic precast beam and a slab can be computed from

$$v_{uh} = \frac{VQ}{I_c b_v} \quad (16-13)$$

where

V = shear force acting on the section in question

Q = first moment of the area of the slab or flange about the centroidal axis of the composite section

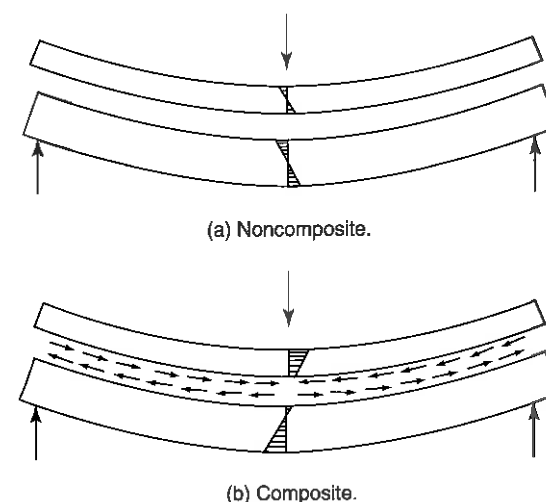


Fig. 16-11
Horizontal shear transfer in a composite beam.

I_c = moment of inertia of the composite section

b_v = width of the interface between the precast beam and the cast-in-place slab

Equation (16-13) applies to uncracked elastic beams and is only an approximation for cracked concrete beams.

The ACI Code gives two ways of calculating the horizontal shear stress.

ACI Code Section 17.5.3 defines the nominal horizontal shear force, V_{nh} , to be transferred as

$$\phi V_{nh} \geq V_u \quad (16-14)$$

(ACI Eq. 17-1)

Setting $\phi V_{nh} = V_u$ and using expression for shear stress from Chapter 6 gives

$$v_{nh} = \frac{V_u / \phi}{b_v d} \quad (16-15a)$$

This is based on the observation that the shear stresses on opposite pairs of sides of an element located at the top of the web are equal in magnitude, as shown in Fig. 6-3a, but are arranged to give couples in opposite directions. For an element taken from directly over the beam web at the interface between the web and flange, the shear stresses on the top and bottom sides of the element are v_{nh} , and the shear stresses on the vertical sides of the element are

$$v_{nv} = \frac{V_u / \phi}{b_v d} \quad (16-15b)$$

where V_u is the factored shear force acting on the cross section of the beam as obtained from a shear-force diagram for the beam. If the shear stresses on the left and right faces of the element form a counter-clockwise couple, those on the bottom and top of the element must form a clockwise couple. For equilibrium, the shear stresses on four sides of an element must be equal in magnitude. Thus,

$$v_{nh} = v_{nv} \quad (16-16)$$

Calculation of Horizontal Shear Stresses from C and T Forces

Alternatively, ACI Code Section 17.5.4 allows horizontal shear to be computed from the change in compressive or tensile force in the slab in segment of any length. Figure 16-12 illustrates this clause. At midspan, the force in the compression zone is C , as shown in Fig. 16-12a. All of this force acts above the interface. At the end of the beam, the force in the flange is zero. Thus, the horizontal shear force to be transferred across the interface between midspan and the support is

$$V_h = C \quad (16-17)$$

A similar derivation could be carried out by considering the force in the reinforcement,

$$V_{uh} = T_u \quad (16-18)$$

where T_u is the tensile force in the reinforcement related to M_u .

ACI Code Section 17.5.4.1 says that when ties are provided to resist the horizontal shear calculated using Eqs. (16-17) or (16-18), the spacing of the ties should approximately

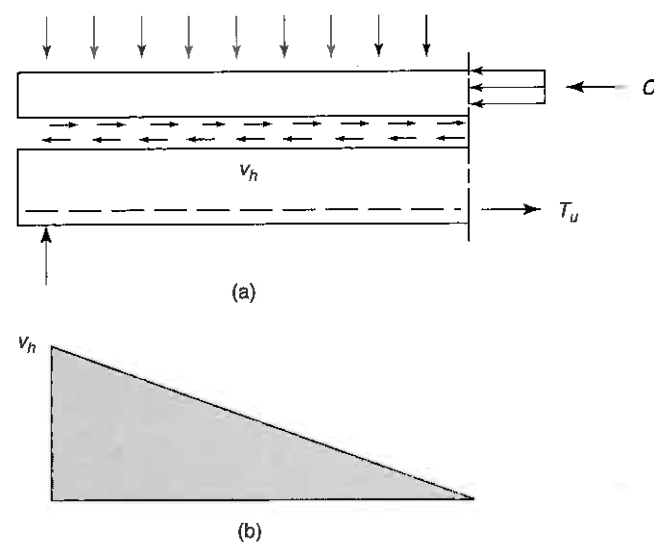


Fig. 16-12
Horizontal shear stresses in a
composite beam.

reflect the distribution of shear forces along the member. This is specified because the slip of the slab relative to the web at the onset of a horizontal shear failure is too small to allow much redistribution of horizontal shear stresses. In [16-5], the measured slip at maximum horizontal shear stress was on the order of 0.02 in., and the slip at failure ranged from 0.08 to 0.3 in. We shall calculate the horizontal shear stresses by dividing the beam into a series of segments and computing the value of C_u or T_u at both ends of each segment. Then,

$$v_{uh} = \frac{T_{u1} - T_{u2}}{b_v \ell_s} \quad (16-19)$$

where T_{u1} and T_{u2} are the larger and smaller tension forces on the two ends of a segment, and ℓ_s is the length of the segment. The tension force can be taken as $T_u = M_u / jd$. If jd is assumed to be constant, T_u varies as the M_u diagram. For a uniformly loaded simple beam, the M_u diagram is a parabola, and the moments at the $\frac{1}{4}$ and $\frac{1}{8}$ points of the span are 0.75 and 0.438 times the maximum moment, respectively. These fractions of the moment diagram can be calculated from the shear-force diagram because the change in moment from one section to another is equal to the area of the shear-force diagram between the two sections.

The two procedures give similar results, as will be seen in Example 16-2. The limits on V_{nh} (V_{uh} / ϕ) from ACI Code Sections 17.5.3.1 to 17.5.3.3 are given in Table 16-1.

In composite beams, the contact surfaces must be clean and free from laitance. The words "intentionally roughened" imply that the surface has been roughened with a "full amplitude" of $\frac{1}{4}$ in., as discussed in connection with shear friction. When the factored shear force, $V_u = \phi V_{nh}$, at the section exceeds $\phi(500b_v d)$ psi, ACI Code Section 17.5.3.4 requires design be based on shear friction, in accordance with ACI Code Section 11.6.4. This limit reflects the range of test data used to derive ACI Code Section 17.5.3.3.

ACI Code Section 17.6 requires that the ties provided for horizontal shear be not less than the minimum stirrups required for shear, given by

$$A_v = \frac{0.75 \sqrt{f'_c} b_w s}{f_{yt}}, \text{ and } \geq \frac{50 b_w s}{f_{yt}} \quad (16-20)$$

(ACI Eq. 11-13)

The tie spacing shall not exceed four times the least dimension of the supported element, which is usually the thickness of the slab, but not more than 24 in. The ties must be fully anchored both in the beam stem and in the slab.

TABLE 16-1 Calculation of V_{nh}

ACI Section	Contact Surfaces	Ties	V_{nh}
17.5.3.1	Intentionally roughened	None	$80b_v d$
17.5.3.2	Not roughened	Minimum ties from ACI Code Section 17.6	$80b_v d$
17.5.3.3	Intentionally roughened	$A_v f_{yt}$	$\left(260 + \frac{0.6 A_v f_{yt}}{b_v s} \right) \lambda b_v d$ but not more than $500b_v d$

Deflections

The beam cross section considered when calculating deflections depends on whether the beam was shored or unshored when the composite slab is placed. If it is shored so that the full dead load of both the precast beam and the slab is carried by the composite section, ACI Code Section 9.5.5.1 allows the designer to consider the loads to be carried by the full composite section when computing deflections. The modulus of elasticity should be based on the strength of the concrete in the compression zone, while the modulus of rupture should be based on the strength of the concrete in the tension zone. For nonprestressed beams constructed with shores, it is not necessary to check deflections if the overall height of the composite section satisfies ACI Code Table 9.5(a).

ACI Code Section 9.5.5.2 covers the calculation of deflections for unshored construction of nonprestressed beams. If the thickness of the precast member satisfies ACI Table 9.5(a), it is not necessary to consider deflections. If the thickness of the composite section satisfies the table, but the thickness of the precast member does not, it is not necessary to compute deflections occurring after the section becomes composite, but it is necessary to compute the instantaneous deflections and that part of the sustained load deflections occurring prior to the beginning of effective composite action. The latter can be assumed to occur when the modulus of elasticity of the slab reaches 70 to 80 percent of its 28-day value, usually about four to seven days after the slab is placed.

ACI Code Section 9.5.5.1 states that if deflections are computed, they should account for the curvatures induced by the differential shrinkage between the slab and the precast beam. Shrinkage of the slab relative to the beam causes the slab to shorten relative to the beam. Because the slab and beam are joined together, this relative shortening causes the beam to deflect downward, adding to the deflections due to loads. Some of the shrinkage of the concrete in the beam will have occurred before the beam is erected in the structure. All of the slab shrinkage occurs after the slab is cast. As the slab shrinks relative to the beam, tensile stresses are induced in the slab and compressive stresses in the beam. These are redistributed to some degree by creep of the concrete in the slab and beam. This effect can be modeled by using an *age-adjusted effective modulus*, E_{caa} , and an *age-adjusted transformed section* in the calculations, as discussed in Section 3-6 and in [16-17] and [16-18].

EXAMPLE 16-2 Design of a Composite Beam

Precast, simply supported beams that span 24 ft and are spaced 10 ft on centers are composite with a slab that supports an unfactored live load of 100 psf, a partition load of 20 psf, and a superimposed dead load of 10 psf. Design the beams and the composite beam and slab. Use $f'_c = 3000$ psi for the slab, 5000 psi for the precast beams, and $f_y = 60,000$ psi. Use load factors from ACI Code Section 9.2.1.

1. Select the trial dimensions. For the end span of the slab, ACI Code Table 9.5(a) gives the minimum thickness of a one-way slab as $h = \ell/24 = 120 \text{ in.}/24 = 5 \text{ in.}$ For a simply supported beam, the table gives $h = \ell/16 = (24 \times 12)/16 = 18 \text{ in.}$ Deflections of the composite beam may be a problem if the overall depth is less than 18 in. However, for unshored construction, ACI Code

9-8 FATIGUE

Structures subjected to cyclic loads may fail in fatigue. This type of failure requires (1) generally in excess of 1 million load cycles, and (2) a change of reinforcement stress in each cycle in excess of about 20 ksi. Because dead-load stresses account for a significant portion of the service-load stresses in most concrete structures, the latter case is infrequent. As a result, fatigue failures of reinforced concrete structures are rare. An overview of the fatigue strength of reinforced concrete structures is given in [9-35].

Fatigue failure of the concrete itself occurs via a progressive growth of microcracking. The fatigue strength of plain concrete in compression or tension for a life of 10 million cycles is roughly 55 percent of the static strength. It is affected by the minimum stress during the cycle and by the stress gradient. Concrete loaded in flexural compression has a 15 to 20 percent higher fatigue strength than axially loaded concrete, because the development of microcracking in highly strained areas is inhibited by the restraint provided by less strained areas. The fatigue strength of concrete is not sensitive to stress concentrations.

The ACI Committee for fatigue of concrete [9-35] recommends that the compressive stress range, f_{cr} , should not exceed

$$f_{cr} = 0.4f'_c + 0.47f_{\min} \quad (9-16)$$

where $f_{\min}$ is the minimum compressive stress in the cycle (positive in compression). The ACI Committee for bridge design [9-36] limits the compressive stress at service load to $0.5f'_c$.

The fatigue strength of deformed reinforcing bars is affected by the stress range and the minimum stress in the stress cycle, but is almost independent of the yield strength of the bar.

In tests, bends with the minimum radius of bend permitted by the ACI Code reduced the fatigue strength in the region of the bend by a half, while tack welding of stirrups to longitudinal bars reduced the strength of the latter by more than a third [9-36]. The fatigue strength of bars is also affected by the radius at the bottom of the deformation lugs.

For bars of normal lug geometry, the ACI Committee for bridge design [9-36] recommends that the stress range not exceed

$$f_{sr} = 23.4 - 0.33f_{\min} \quad (\text{ksi}) \quad (9-17)$$

where f_{sr} is the algebraic difference between the maximum and minimum stresses at service loads and $f_{\min}$ is the minimum stress at service loads. In both cases, tension is positive. At bends or near tack welds, the allowable f_{sr} should be taken as half the value given by Eq. (9-17).

The fatigue strength of stirrups is less than that of longitudinal bars [9-36], due in part to a slight kinking of the stirrup where it crosses an inclined crack and, possibly, in part to an increase in the stirrup stress resulting from a reduction in the shear carried by the concrete in cyclically loaded beams. No firm design recommendations are currently available. A reasonable design procedure would be to limit the stirrup stress range to 0.75 times f_{sr} from Eq. (9-17), where the stirrup stress range would be calculated on the basis of the ACI shear design procedures, but using $V_c/2$.

The effect of cyclic loading on bond strength is approximately the same as that on the compressive strength of concrete [9-37]. Hence, a relationship similar to Eq. (9-16) would adequately estimate the allowable bond-stress range. During the initial stages of the cyclic load, the loaded end of the bar will slip relative to the concrete, as a result of internal cracking around the bar. The slip ceases once the cracking has stabilized.

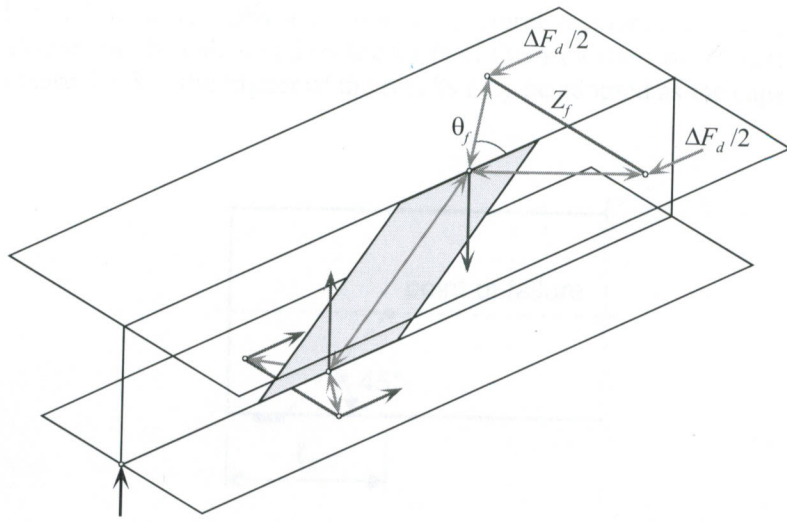


Figure 7.3-13: Strut-and-tie model for force introduction into the flanges

7.3.3.5 Shear between web and flanges of T-sections

The introduction of tensile or compressive forces into the flanges (Figure 7.3-13) creates shear forces at the transition of web and flanges, inducing corresponding transverse tensile and compressive forces in the flanges.

The spread of the compressive forces in the flanges shall be examined with the aid of stress fields. Recommended values for the angle of spread are:

- $25^{\circ} \leq \theta_f \leq 45^{\circ}$ for compressive flanges; and
- $35^{\circ} \leq \theta_f \leq 50^{\circ}$ for tensile flanges.

Unless a more detailed analysis is undertaken, reinforcement for the introduction of forces into the flanges shall be superimposed on that required for transverse bending.

In addition, the minimum transverse reinforcement shall not be less than that required by subclause 7.13.5.

The longitudinal flange reinforcement shall be anchored in accordance with the assumed stress field requirements.

7.3.3.6 Shear at the interface between concrete cast at different times

In addition to the requirements formulated in the subclauses 7.3.3.1 to 7.3.3.5 the shear stress at the interface between concrete cast at different times should also satisfy the following condition:

$$\tau_{Edi} \leq \tau_{Rdi} \tag{7.3-48}$$

where τ_{Edi} is the design value of the shear stress in the interface, given by

$$\tau_{Edi} = \beta \cdot V_{Ed} / (z b_i) \tag{7.3-49}$$

where:

β is the ratio of the longitudinal force in the new concrete and the total longitudinal force either in the compression or tension zone, both calculated for the section considered;

If a “rigid” bond-slip behaviour is expected and very good adhesive bonding guaranteed on the site, the adhesive bond effect shall be taken into account without superimposing effects of interface reinforcement. The most important precondition for the assumption of good adhesive bond is a well prepared and very clean concrete surface at the time of casting.

Adhesive bond resistance shall only be applied for design if no tensile loading perpendicular to the interface is expected.

The adhesion coefficients c_a actually depend on a variety of influencing parameters (see subclause 6.3.3); nevertheless the c_a factors given in Table 7.3-1 represent reasonable values on the safe side for the given roughness categories.

Special attention shall be put on edge zones, see detailing rules in clause 6.3.

For the definition of roughness of the classes distinguished in Table 7.3-1 reference is made to subclause 6.3.2.

z is the inner lever arm of the composed section;

b_i is the width of the interface and V_{Ed} is the shear force on the composed section.

Interface without reinforcement (rigid bond-slip behaviour)

The design limit value τ_{Rdi} for the interface shear in Eq. (7.3-31) follows from:

$$\tau_{Rdi} = c_a \cdot f_{ctd} + \mu \cdot \sigma_n \leq 0.5 \cdot \nu \cdot f_{cd} \quad (7.3-50)$$

where:

c_a is the coefficient for the adhesive bond;

μ is the friction coefficient acc. Table 7.3-2;

σ_n is the (lowest expected) compressive stress resulting from an eventual normal force acting on the interface.

The adhesion factor c_a depends on the roughness of the interface (see Table 7.3-1; R_t is derived from the sand patch method).

Table 7.3-1: Coefficients for the adhesive bond resistance

Surface characteristics of interface	c_a
Very rough (including shear keys) $R_t \geq 3.0$ mm	0.5
Rough (strongly roughened surface) $R_t \geq 1.5$ mm	0.40
Smooth (concrete surface without treatment after vibration or slightly roughened when cast against formwork)	0.20
Very smooth (steel, plastic, timber formwork)	0.025

Under fatigue or dynamic loads the values for c_a as found in Table 7.3-1 have to be reduced to 50%.

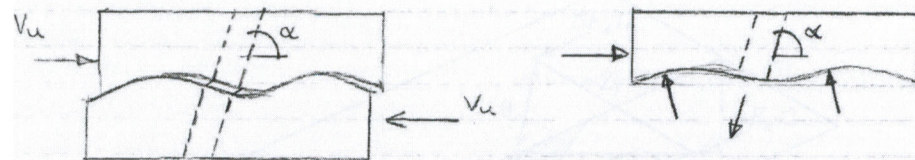


Figure 7.3-14: Transmission of shear forces across an interface intersected by reinforcing bars

Eq. (7.3-51) relates to interfaces intersected by dowels or reinforcement and characterized by a rather non-rigid bond-slip behaviour.

Connectors may be omitted in interface regions where the design shear stress does not exceed the resistance given in Eq. (7.3-50).

It is worthy of note that for a bar in tension, as explained in clause 6.3, the tensile strength of the bar is reduced when the bar is also subjected to dowel action, as shown in Figure 7.3-15.

The detailing rules given in clause 6.3 concerning embedment depth of connectors and minimum amount of steel cross-section shall be obeyed.

Interface intersected by dowels or reinforcement

If strong adhesive bond cannot be guaranteed on the site or the design shear resistance provided by adhesive bond acc. Eq. (7.3-50) is lower than the design shear stress, interface connectors are required and the design limit value τ_{Rdi} follows from:

$$\begin{aligned} \tau_{Rdi} &= c_r \cdot f_{ck}^{1/3} + \mu \cdot \sigma_n + \kappa_1 \cdot \rho \cdot f_{yd} \cdot (\mu \cdot \sin \alpha + \cos \alpha) + \kappa_2 \cdot \rho \cdot \sqrt{f_{yd} \cdot f_{cd}} \\ &\leq \beta_c \cdot v \cdot f_{cd} \end{aligned} \tag{7.3-51}$$

where strength values are in N/mm^2 and,

- c_r is the coefficient for aggregate interlock effects at rough interfaces;
- κ_1 is the interaction coefficient for tensile force activated in the reinforcement or the dowels;
- κ_2 is the interaction coefficient for flexural resistance;
- μ is the friction coefficient;
- ρ is the reinforcement ratio of the reinforcing steel crossing the interface;
- σ_n is the (lowest expected) compressive stress resulting from an eventual normal force acting on the interface;
- α is the inclination of the reinforcement crossing the interface (see Fig. 7.3-14);
- β_c is the coefficient for the strength of the compression strut;
- $v = 0.55 \left(\frac{30}{f_{ck}} \right)^{1/3} < 0.55$.

The coefficients for different surface roughness in interfaces reinforced with dowels or rebars are given in Table 7.3-2.

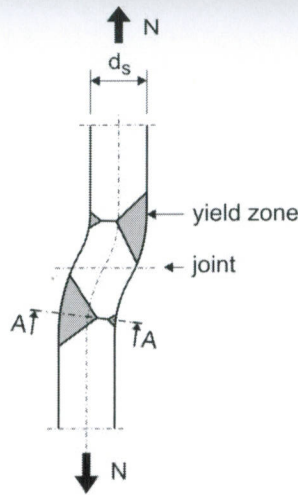


Figure 7.3-15: Dowel action under simultaneous tension and shear

For the background of the values in Table 7.3-2, reference is made to Randl, Münger, Wicke “Strengthening bridges by a structural top layer” (Der Bauingenieur 2005, pp. 207-214, in German).

The roughness of a concrete surface can be measured in various ways (see subclause 6.3.2). An appropriate way is the *sand patch method* as depicted in Figure 7.3-16 (Kaufmann, 1971). A volume of sand V is spread on the rough surface in a circular area with diameter d . The roughness parameter R_t follows from:

$$R_t [mm] = \frac{40 \cdot V}{\pi d^2} \quad (7.3-52)$$

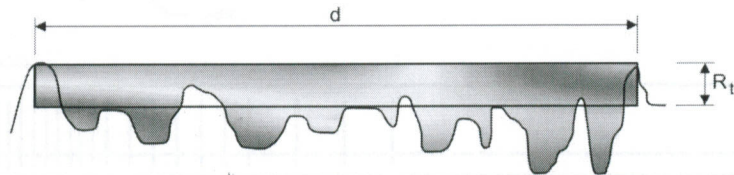


Figure 7.3-16: Principle of sand patch method for the qualification of the roughness of an interface

Table 7.3-2: Coefficients for different surface roughness

Surface Roughness	c_r	κ_1	κ_2	β_c	μ	
					$f_{ck} \geq 20$	$f_{ck} \geq 35$
Very rough* $R_t \geq 3.0$ mm	0.2	0.5	0.9	0.5	0.8	1.0
Rough $R_t \geq 1.5$ mm	0.1	0.5	0.9	0.5	0.7	
Smooth	0	0.5	1.1	0.4	0.6	
Very smooth	0	0	1.5	0.3	0.5	

* valid also for shear keys

Under fatigue or dynamic loads the values for τ_{Rdi} according to Eq (7.3-51) have to be reduced to 40%.

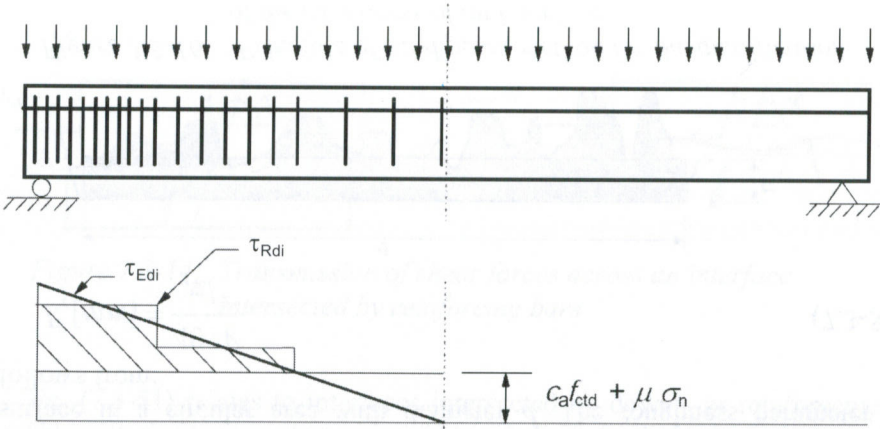


Figure 7.3-17: Shear diagram representing the required interface reinforcement

A stepped distribution of the transverse reinforcement may be used, as indicated in Figure 7.3-17.

7.3.4 Torsion

Where static equilibrium depends on the torsional resistance of elements of the structure, a full torsional design for both the ultimate and serviceability limit states shall be undertaken.

Where in structures torsion arises from consideration of compatibility only, and the structure is not dependent on torsional resistance for its stability, it will normally not be necessary to consider torsion at the ultimate limit state. In such cases minimum torsional reinforcement shall be provided in the form of stirrups and longitudinal bars should be provided to prevent excessive cracking, as per the requirements of subclause 7.13.5.2.

The determination of the torsional resistance of box-girders and beams of solid cross-section is based on an ideal hollow cross-section as shown in Figure 7.3-18.

CEB-FIP MODEL CODE 2010

CLAUSE 7.3.3.6 SHEAR AT THE INTERFACE BETWEEN CONCRETE CAST AT DIFFERENT TIMES

Determine interface shear resistance per CEB-FIP Model Code 2010 as comparison to AASHTO 5.7.4.3.

EXCERPT FROM CEB-FIP MC 2010

Interface intersected by dowels or reinforcement

If strong adhesive bond cannot be guaranteed on the site or the design shear resistance provided by adhesive bond acc. Eq. (7.3-50) is lower than the design shear stress, interface connectors are required and the design limit value τ_{Rdi} follows from:

$$\tau_{Rdi} = c_r \cdot f_{ck}^{1/3} + \mu \cdot \sigma_n + \kappa_1 \cdot \rho \cdot f_{yd} \cdot (\mu \cdot \sin \alpha + \cos \alpha) + \kappa_2 \cdot \rho \cdot \sqrt{f_{yd} \cdot f_{cd}} \leq \beta_c \cdot \nu \cdot f_{cd} \quad (7.3-51)$$

where strength values are in N/mm^2 and,

c_r is the coefficient for aggregate interlock effects at rough interfaces;

κ_1 is the interaction coefficient for tensile force activated in the reinforcement or the dowels;

κ_2 is the interaction coefficient for flexural resistance;

μ is the friction coefficient;

ρ is the reinforcement ratio of the reinforcing steel crossing the interface;

σ_n is the (lowest expected) compressive stress resulting from an eventual normal force acting on the interface;

α is the inclination of the reinforcement crossing the interface (see Fig. 7.3-14);

β_c is the coefficient for the strength of the compression strut;

$$\nu = 0.55 \left(\frac{30}{f_{ck}} \right)^{1/3} < 0.55.$$

The coefficients for different surface roughness in interfaces reinforced with dowels or rebars are given in Table 7.3-2.

Table 7.3-2: Coefficients for different surface roughness

Surface Roughness	c_r	κ_1	κ_2	β_c	μ	
					$f_{ck} \geq 20$	$f_{ck} \geq 35$
Very rough* $R_t \geq 3.0$ mm	0.2	0.5	0.9	0.5	0.8	1.0
Rough $R_t \geq 1.5$ mm	0.1	0.5	0.9	0.5	0.7	
Smooth	0	0.5	1.1	0.4	0.6	
Very smooth	0	0	1.5	0.3	0.5	

* valid also for shear keys

CALCULATION

Input	US Units	Metric Units			
$f_c =$	3.5 ksi	24 Mpa			
$f_y =$	60 ksi	414 Mpa			
$A_v =$	1.76 in ²	1135 mm ²			
$s =$	8.5 in	216 mm			
$A_v/s =$	2.48 in ² /ft	5 mm ² /mm			
$b =$	102 in.	2591 mm			
$\rho_v f =$	0.002	0.002			
$f_{yd} =$	52.17 ksi	360 Mpa	$= f_y/1.15$	Partial Safety Factor =	1.15
$f_{cd} =$	2.33 ksi	16 Mpa	$= f_c/1.5$	Partial Safety Factor =	1.5
$c_1 =$	0	0			
$k_1 =$	0.5	0.5			
$k_2 =$	1.1	1.1			
$\beta_c =$	0.4	0.4			
$\mu =$	0.6	0.6			
$\sigma_x =$	0 ksi	0 Mpa			

Interface Shear Resistance Stress

1 $\tau_n =$	0.000 ksi	0.000 Mpa	$= c_1(f_c)^{1/3}$, Concrete cohesion
2 $\tau_n =$	0.000 ksi	0.000 Mpa	$= \mu \cdot \sigma_x$, External compressive force
3 $\tau_n =$	0.032 ksi	0.219 Mpa	$= k_1 \cdot \rho_v f \cdot f_{yd} \cdot \mu$, Reinforcement tensile resistance
4 $\tau_n =$	0.025 ksi	0.170 Mpa	$= k_2 \cdot \rho_v f \cdot V(f_{yd} \cdot f_{cd})$, Reinforcement flexural resistance
5 $\tau_n =$	0.056 ksi	0.389 Mpa	

Interface Shear Resistance Stress Limit

$v =$	0.55	0.55	
$\tau_n =$	0.513 ksi	3.54 Mpa	OK

Interface Shear Resistance Force

1 $V_r =$	0.0 kips/ft	0.0 kN/m
2 $V_r =$	0.0 kips/ft	0.0 kN/m
3 $V_r =$	38.9 kips/ft	567.7 kN/m
4 $V_r =$	30.2 kips/ft	440.2 kN/m
5 $V_r =$	69.0 kips/ft	1007.9 kN/m

AASHTO Interface Shear Resistance Assuming $c = 0$ instead of 0.075 ksi specified by AASHTO

$c =$	0 ksi	$\phi =$	0.9
$A_{cv} =$	1224 in ²		
$u =$	0.6		
$V_r =$	80.5 kips/ft	$= \phi(c \cdot A_{cv} + u \cdot A_v f_y)$	(with $c = 0$ Concrete Cohesion Ignored)

Comparison of Concrete Cohesion Coefficients

	AASHTO	MC 2010	
$c_1 =$	0.075 ksi	0 Mpa	Smooth Interface
$c_1 =$	0.240 ksi	0.805 Mpa	Rough Interface
		0.117 ksi	

See MC 2010 Table 7.3-2 above

See AASHTO LRFD Bridge Design Specifications 8th Ed. Article 5.7.4.3

NCHRP 25-25/Task 72

**CURRENT PRACTICES TO ADDRESS
CONSTRUCTION VIBRATION AND
POTENTIAL EFFECTS TO HISTORIC BUILDINGS
ADJACENT TO
TRANSPORTATION PROJECTS**

Prepared by:
Wilson, Ihrig & Associates, Inc.,
ICF International, and
Simpson, Gumpertz & Heger, Inc.

September 2012

The information contained in this report is part of NCHRP Project 25-25, Task 72 National Cooperative Highway Research Program.

SPECIAL NOTE: This report **IS NOT** an official publication of the National Cooperative Highway Research Program, Transportation Research Board, National Research Council, or The National Academies.

4. LITERATURE REVIEW

The research team conducted a literature search to gather the most recent information available on the subject. Using the information contained in a recent document as a starting point, further research was conducted using various on-line search engines (e.g., Google Scholar). The follow-up phone calls to certain individuals who responded to the questionnaire survey (described in Section 5) also produced additional reference material. A memo, summarizing the results of the literature review, is contained in Appendix A. A brief summary of the literature review is provided below.

During the literature search, the research team obtained several references that were published subsequent to the 2002 document (HNTB Corporation and Wilson, Ihrig and Associates). Including previous literature and newly obtained literature, the research team assembled 64 reference documents, including published journal articles, project reports, national and

international standards, government guidelines, government regulations, and books related to the subject.

After reviewing existing reference lists and conducting an on-line search, the Team reviewed the material obtained for the level of relevance to the research topic. To assist with this task, the research team devised a rating scheme that focused on the relevance of the material. This rating can also serve as a simple guide to users of this document who desire to go beyond the summary provided herein and read the full text of the reference literature for additional details.

In order to focus the review of the literature, a list of general subject matter was developed. The list consisted of essential elements of the research. The Team members identified fourteen (14) relevant areas or content categories for characterizing the material found in the literature. The categories are:

- Historic, old or fragile buildings or other such structures are discussed
- Construction (general and blasting) vibration effects are discussed
- Damage is discussed
- Protection from construction vibration (mitigation) is discussed
- Ambient vibration effects are discussed
- Vibration limits to protect structures are presented
- A formal or structured process (government or otherwise) to evaluate and protect historic structure is discussed
- A detailed case study is presented
- Actual damage (or no damage) correlated to vibration is presented
- Detailed construction vibration mitigation measures are presented
- The fragile nature of structures is discussed (what makes a structure damage prone)
- Prediction of vibration from construction is presented
- Blasting vibration effects are discussed
- Discussion of the potential for soil settlement

Using the above categories it was possible to systematically review the documents obtained and evaluate their applicability to the subject matter based on how thorough each one was in covering the identified areas of interest.

From the research team's literature review, it has been concluded that there is consensus on many issues relating to protecting historic structures. The research team also concludes that there is no consensus concerning appropriate vibration limits. Most of the research in the field of building damage comes from blasting vibration and its effect on modern structures. The research team observed that blast effect researchers tend to recommend higher levels of vibration than researchers whose studies involve lower levels of vibration such as that associated with roadway traffic. There is very little research pertaining to the subject of common construction vibration.

It is unlikely that additional government research on construction vibration will happen any time soon. In the meantime it will probably be necessary to adopt a cautious approach to setting limits and allow for flexibility on a case-by-case basis. This seems like the most viable approach to take and seems to have some support based on the literature reviewed. The procedures for documenting the existing condition of buildings and monitoring vibration are well established and generally there is universal agreement on these procedures.

Many state DOTs have procedures for controlling and monitoring blast vibration. Aside from this, the State of California is the only DOT which has produced a set of detailed procedures for controlling general construction vibration associated with transportation projects. Neither the survey of state DOTs nor the follow-up phone calls revealed procedures similar to those of California. The details of the literature search and review can be found in a summary memo in Appendix A.

4.1 Vibration Criteria

Table 1 summarizes the range of vibration limits recommended by researchers, practitioners, and government standards for avoiding damage to historic buildings as obtained from the generally available literature. Only those limits that are unique and originated with the reference document are indicated.

Clearly there is a wide range of opinion on appropriate vibration limits for historic buildings and structures. At one end of the range is a conservative limit of 0.10 inches/sec except in the case of ancient ruins where 0.08 inches/sec is considered appropriate by some. At the other end of the range, some would consider 0.50 inches/sec or even 2.0 inches/sec to be appropriate.

Much of the research indicates that as the vibration frequency increases, building elements are better able to withstand higher levels of vibration. A full explanation of this phenomenon would require a rather lengthy discourse on structural dynamics. Suffice it to say that the reason has to do with the movement of main building elements (primarily walls) when subjected to base excitation. At lower frequencies, walls tend to deform more (the relative movement of different points on the wall), thus subjecting the brittle materials (in the case of masonry construction) from which they are made (such as brick and mortar) to higher stresses and strains. Based on the research, it would appear that using a frequency-based limit is probably the most reasonable approach. The German standard DIN 4150-3 is a good example of this approach.

Some case studies suggest that it is possible to set conservative vibration limits and still allow for some flexibility in modifying those limits based on detailed engineering investigation and analysis done on a case-by-case basis prior to award of the construction contract. Alternatively, the transportation funding agency could adopt conservative criteria and allow for flexibility after the award of contract based on detailed investigations to be conducted by the contractor, who would need to demonstrate based on an engineering analysis the appropriateness of higher limits.

Table 1. Summary of Vibration Limits

Reference Source	Remarks on Vibration Source	Remarks on Building or Structure	Remarks on Type of Damage	Vibration Limit - PPV (inches/sec)
British Standards Institute (1993)	All (including blasting)	Unreinforced or light framed structures	Cosmetic	0.6 to 2.0† (historic buildings may require special consideration)
Sedovic (1984)	All	Historic buildings in good state of maintenance	--	0.5
City of New York City (1988); Esrig and Ciancia (1981)	Blasting, pile driving and vehicular traffic	Structures which are designated NYC landmarks, or located within an historic district or listed on the NHRP	--	0.5
Whiffin and Leonard (1971)	Traffic	Buildings with plastered walls and ceilings	Architectural damage and risk of structural damage	0.4 to 0.6
Rudder (1978)	Traffic	All	Structural damage possible	0.4
City of Toronto (2008)	All (blasting not mentioned)	All buildings	--	0.3 to 1.0† (lower limits may be identified by professional engineer)
Konon and Schuring (1985)	Transient	Historic buildings	Cosmetic	0.25 to 0.5†
Swiss Standards Association (1992)	All (blasting, construction equipment, and road traffic)	Historic and protected buildings	--	0.2 to 0.5†
Federal Transit Administration (2006)	All	Non-engineered timber and masonry buildings	--	0.2
Sedovic (1984)	All	Historic or architecturally important buildings in deteriorated state of maintenance	--	0.2
Whiffin and Leonard (1971)	Traffic	Buildings with plastered walls and ceilings	Threshold of risk of architectural damage	0.2
Feilden (2003)	All	All buildings	Threshold for structural damage	0.2
Rudder (1978)	Traffic	All	Minor damage possible	0.2
Konon and Schuring (1985)	Steady state	Historic buildings	Cosmetic	0.13 to 0.25†
Deutsches Institut für Normung DIN 4150-3 (1999)	All	Buildings of great intrinsic value	Any permanent effect that reduces serviceability	0.12 to 0.4†
Federal Transit Administration (2006)	All	Buildings extremely susceptible to vibration	--	0.12
American Association of State Highway and Transportation Officials (2004)	All	Historic sites and other critical locations	Threshold for cracks (cosmetic)	0.12
Esteves (1978)	Blasting	Special care, historical	--	0.1 to 0.4††
Rudder (1978)	Traffic	All	Threshold of structural damage	0.1
Whiffin and Leonard (1971)	Traffic	Buildings with plastered walls and ceilings	Virtually no risk of architectural damage	0.1
Feilden (2003)	All	All buildings	Threshold for plaster cracking	0.08
Whiffin and Leonard (1971)	Traffic	Ruins and ancient monuments	--	0.08

† frequency-dependent criteria

†† depending on soil type and frequency

4.2 Current Practices

Current practices for controlling construction vibration affecting historic structures vary considerably. Most jurisdictions recognize a need to document the condition of the affected buildings prior to starting construction. This can be accomplished with still photo and video documentation. Where vibration limits are specified, vibration monitoring is required. Some agencies require warning thresholds to indicate when vibration levels are approaching the allowed limit. With current monitoring instrument technology, exceeding a threshold can be used to trigger a visual or audio alarm as well as an email notification of the event.

Incorporating a Project Historical Architect (PHA) into the process allows a professional trained in building preservation to work with the resident engineer in the decision making process when vibration limits are exceeded. Most mitigation measures included in project contract documents tend to be generic but do provide some means and methods that contractors can follow when vibration limits are exceeded.

4.3 Procedures

There is general agreement on the procedures to follow when dealing with construction vibration. The following are generally recommended steps to follow:

- Consultation between historic building owner, development team and reviewing agencies, such as SHPO and local planning departments, to identify potential risks, negotiate changes, and agree on protective measures.
- Documentation of building conditions prior to commencement of adjacent work, including a detailed photo survey of existing damage.
- Establishment of vibration limits based on building conditions, founding soil conditions, and type of construction vibration.
- Implementation of vibration mitigating measures on the construction site and/or at the historic building, which could include specific means and methods or protective measures.
- Vibration monitoring during construction using seismographs, with notification by audible and/or visual alarms when limits are approached or exceeded.
- Regular condition surveys and reviews during construction to identify damage, to evaluate the efficacy of protective measures already in place, and to identify and implement additional corrective steps.

4.4 Human Perception of Vibration

Although it was not the intent of this project to explore human reaction to construction vibration, it is important to address it only briefly. The potential effect of vibration on occupants of an affected building can have a substantial effect on the public's reaction to a project. The vibration criteria presented by researchers discussed herein deal exclusively with the effects on buildings. However, a few documents included in the literature search also address human perception as well. Examples can be found in Caltrans (2004) and Whiffin and Leonard (1971). In addition the research team has relied on its experience from previous projects. Note that vibration measured at ground level can sometimes be lower than vibration inside the building due to amplification of vibration caused by resonances in building floors.

For continuous (steady state) vibration (e.g., vibratory compaction, vibratory pile driving):

- PPV that exceeds 0.035 inches/sec is generally considered to be distinctly perceptible.
- PPV of 0.10 inches/sec would be strongly perceptible and, according to Whiffin and Leonard (1971), begins to annoy.
- PPV of 0.2 inches/sec is definitely annoying.
- PPV between 0.4 and 0.6 inches/sec would be unpleasant, according to Whiffin and Leonard (1971).

Consequently, if one adopted a vibration limit of greater than 0.1 inches/sec for continuous vibration, a reaction from building occupants should be expected. The greater the limit, the greater the reaction would be.

Humans are generally considered to be less sensitive to transient (generally impulsive) vibration (e.g., impact pile driving, blasting), than to similar vibration from continuous sources. Kelly, et al. (1998) and Wiss (1981) present data that relate human perception to transient vibration as well as steady state vibration. For transient vibration (e.g., pile driving, blasting):

- PPV between 0.04 and 0.2 inches/sec is considered to be barely perceptible.
- PPV between 0.2 and 0.8 inches/sec would be distinctly perceptible.
- PPV between 0.8 and 2.0 inches/sec should be strongly perceptible.

Comparing the two sets of data (continuous and transient), it can be seen that there is approximately a factor of eight difference in the sensitivity to the nature of the vibration.

Figure 1 provides a comparison between typical vibration levels at 25 feet from various common sources and the response of humans (annoyance) and the potential for damage to historic buildings. The sensitivity of humans makes them aware of vibration at levels much lower than those that result in damage to most contemporary structures, although older historic buildings can be at risk in the transition range of vibration that is just barely perceptible (0.02 inches/sec) to vibration that most people would find definitely annoying (0.2 inches/sec).

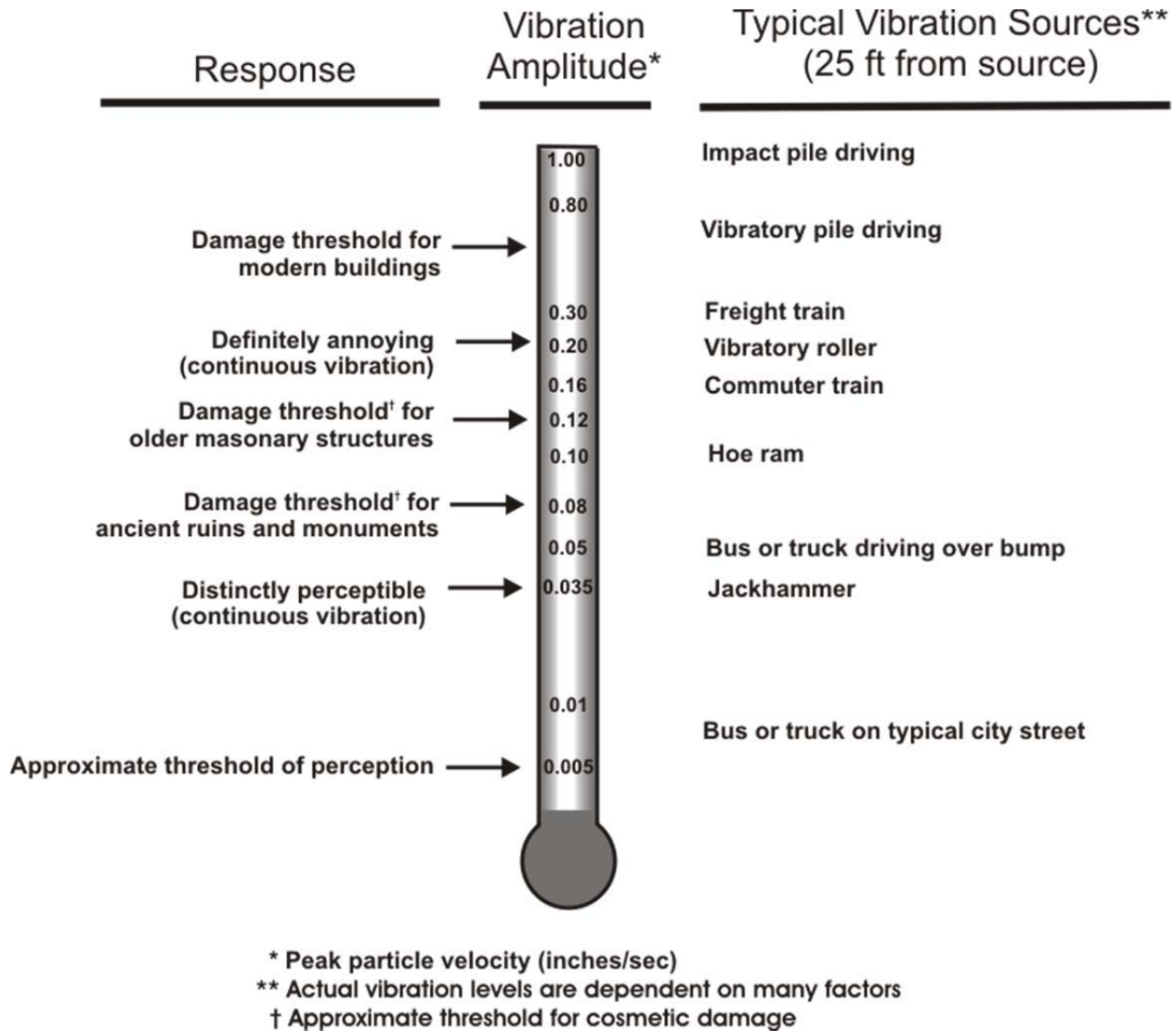


Figure 1. Typical Vibration Amplitudes and Thresholds

Agency staff and consultants who interact with the public and building owners in particular should be aware of potential human reaction to vibration. They should be prepared to explain in terms that can be understood by the average person that just because a person can feel vibration does not automatically mean that damage is occurring. They also should be prepared to explain that even though older buildings tend to be more susceptible to vibration, adequate measures can be implemented that protect against damage.

4.5 Summary

Recommended vibration limits tend to vary considerably within the published literature and national standards. The research team attributes this to the viewpoint of the researcher preparing the recommendation. The primary variables affecting the recommendation appear to be whether the field research was focused on blasting (at the high end of vibration) or motor vehicle traffic (at the low end of vibration), with the differences between these two types of vibration being the time history of the vibration (i.e., transient vs. continuous) and the number of vibration cycles to which a building is subjected.

The background of the researcher also appears to have some effect on the recommended limits as well. Researchers from the preservation profession tend to adopt a more conservative approach than researchers in the engineering profession, which is not unexpected. While some older buildings may be more susceptible to damage than new construction, the determining factors are the construction type and condition, not whether the building is historic. Human reaction to construction vibration might also be a consideration when setting limits or at least taken into account when conducting public meetings and outreach.

Aside from the vibration limits adopted for a specific project, general procedures—including building preconstruction condition surveys, clearly specified agreements between stakeholders, and monitoring during construction—are generally accepted procedures to follow to ensure protection of historic buildings. Stakeholders should also involve both experienced preservation professionals and engineers, especially in critical situations where the risk of damage is higher and/or the possibility of mitigating it after the fact is less acceptable.



PARSONS

White River Pier 1 Cap

Thursday, October 3, 2019

p006958B
PARSONS

Tel:



PROJECT SUMMARY

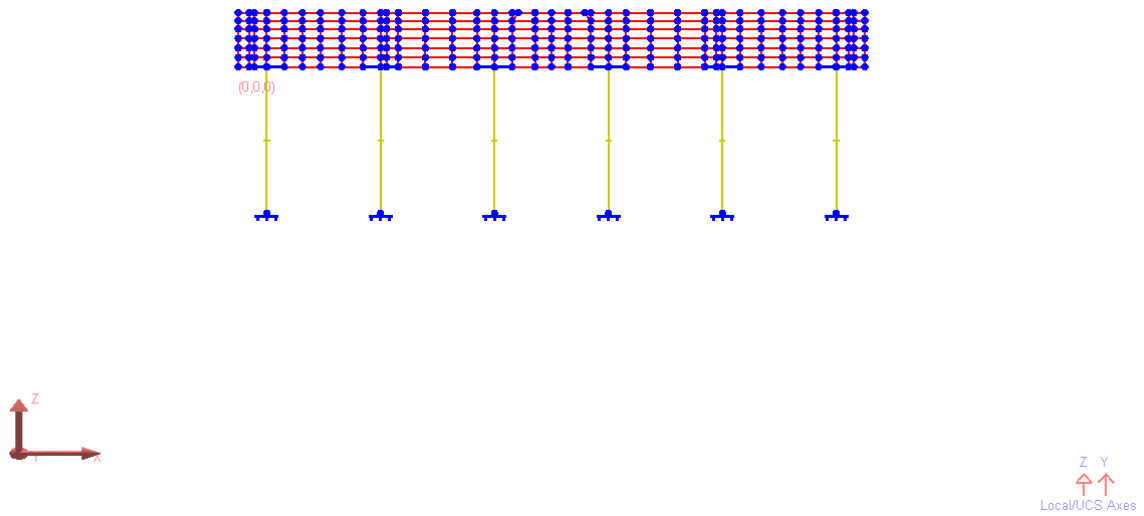
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Sections	1	Plates	218	Construction Stages	NONE
User Coordinate System	NONE	Springs	NONE	Linked Databases	NONE
Spring Curves	NONE	Isolaters	NONE		
Isolater Property	NONE	Mass Elements	NONE		
Creep Definitions	NONE	Slave / Masters	NONE		
		Tendons	NONE		

TABLE OF CONTENTS

INPUTS	Page#	Results	Page#
- INPUT : Material Properties	Page 5	- RESULT : Plate Forces on Center	Page 25
- INPUT : Joints	Page 5	- RESULT ENVELOPE :Plate Forces on Center	Page 105
- INPUT : Members	Page 10	@ In-Plane Shear Fxy (kips/ft)	
- INPUT : Plates	Page 11		
- INPUT : Rigid Links	Page 15		
- INPUT : More Material Properties	Page 16		
- STRUCTURE GROUP SUMMARY	Page 17		
- Load Cases	Page 17		
- STRUCTURE GROUP SUMMARY	Page 21		

Graphics View 1

Zoom 1.000X



INPUT : Material Properties

Name	Modulus of Elasticity (kips/in ²)	Poisson Ratio	Shear Modulus (kips/in ²)	Unit Weight (kips/in ³)	Thermal Expansion (1/ °F *10 ⁻⁶)	Assigned
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2	2.0000	0.0000	0.0000	all free	all free	Global	Yes
3	3.0000	0.0000	0.0000	all free	all free	Global	Yes
4	5.2500	0.0000	0.0000	all free	all free	Global	Yes
5	8.5000	0.0000	0.0000	all free	all free	Global	Yes
6	11.8333	0.0000	0.0000	all free	all free	Global	Yes
7	15.1667	0.0000	0.0000	all free	all free	Global	Yes
8	19.0833	0.0000	0.0000	all free	all free	Global	Yes
9	23.0000	0.0000	0.0000	all free	all free	Global	Yes
10	26.2500	0.0000	0.0000	all free	all free	Global	Yes
11	27.3333	0.0000	0.0000	all free	all free	Global	Yes
12	29.5000	0.0000	0.0000	all free	all free	Global	Yes
13	34.5000	0.0000	0.0000	all free	all free	Global	Yes
14	39.5000	0.0000	0.0000	all free	all free	Global	Yes
15	44.0000	0.0000	0.0000	all free	all free	Global	Yes
16	47.2500	0.0000	0.0000	all free	all free	Global	Yes
17	50.5000	0.0000	0.0000	all free	all free	Global	Yes
18	54.7083	0.0000	0.0000	all free	all free	Global	Yes
19	57.7500	0.0000	0.0000	all free	all free	Global	Yes
20	60.7917	0.0000	0.0000	all free	all free	Global	Yes
21	65.0000	0.0000	0.0000	all free	all free	Global	Yes
22	68.2500	0.0000	0.0000	all free	all free	Global	Yes
23	71.5000	0.0000	0.0000	all free	all free	Global	Yes
24	76.0000	0.0000	0.0000	all free	all free	Global	Yes
25	81.0000	0.0000	0.0000	all free	all free	Global	Yes
26	86.0000	0.0000	0.0000	all free	all free	Global	Yes
27	88.1667	0.0000	0.0000	all free	all free	Global	Yes
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32	103.6667	0.0000	0.0000	all free	all free	Global	Yes
33	107.0000	0.0000	0.0000	all free	all free	Global	Yes
34	110.2500	0.0000	0.0000	all free	all free	Global	Yes
35	112.5000	0.0000	0.0000	all free	all free	Global	Yes
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37	115.5000	0.0000	0.0000	all free	all free	Global	Yes
38	0.0000	0.0000	1.7500	all free	all free	Global	Yes
39	2.0000	0.0000	1.7500	all free	all free	Global	Yes
40	3.0000	0.0000	1.7500	all free	all free	Global	Yes
41	5.2500	0.0000	1.7500	all free	all free	Global	Yes

INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
42	8.5000	0.0000	1.7500	all free	all free	Global	Yes
43	11.8333	0.0000	1.7500	all free	all free	Global	Yes
44	15.1667	0.0000	1.7500	all free	all free	Global	Yes
45	19.0833	0.0000	1.7500	all free	all free	Global	Yes
46	23.0000	0.0000	1.7500	all free	all free	Global	Yes
47	26.2500	0.0000	1.7500	all free	all free	Global	Yes
48	27.3333	0.0000	1.7500	all free	all free	Global	Yes
49	29.5000	0.0000	1.7500	all free	all free	Global	Yes
50	34.5000	0.0000	1.7500	all free	all free	Global	Yes
51	39.5000	0.0000	1.7500	all free	all free	Global	Yes
52	44.0000	0.0000	1.7500	all free	all free	Global	Yes
53	47.2500	0.0000	1.7500	all free	all free	Global	Yes
54	50.5000	0.0000	1.7500	all free	all free	Global	Yes
55	54.7083	0.0000	1.7500	all free	all free	Global	Yes
56	57.7500	0.0000	1.7500	all free	all free	Global	Yes
57	60.7917	0.0000	1.7500	all free	all free	Global	Yes
58	65.0000	0.0000	1.7500	all free	all free	Global	Yes
59	68.2500	0.0000	1.7500	all free	all free	Global	Yes
60	71.5000	0.0000	1.7500	all free	all free	Global	Yes
61	76.0000	0.0000	1.7500	all free	all free	Global	Yes
62	81.0000	0.0000	1.7500	all free	all free	Global	Yes
63	86.0000	0.0000	1.7500	all free	all free	Global	Yes
64	88.1667	0.0000	1.7500	all free	all free	Global	Yes
65	89.2500	0.0000	1.7500	all free	all free	Global	Yes
66	92.5000	0.0000	1.7500	all free	all free	Global	Yes
67	96.4167	0.0000	1.7500	all free	all free	Global	Yes
68	100.3333	0.0000	1.7500	all free	all free	Global	Yes
69	103.6667	0.0000	1.7500	all free	all free	Global	Yes
70	107.0000	0.0000	1.7500	all free	all free	Global	Yes
71	110.2500	0.0000	1.7500	all free	all free	Global	Yes
72	112.5000	0.0000	1.7500	all free	all free	Global	Yes
73	113.5000	0.0000	1.7500	all free	all free	Global	Yes
74	115.5000	0.0000	1.7500	all free	all free	Global	Yes
75	0.0000	0.0000	3.5000	all free	all free	Global	Yes
76	2.0000	0.0000	3.5000	all free	all free	Global	Yes
77	3.0000	0.0000	3.5000	all free	all free	Global	Yes
78	5.2500	0.0000	3.5000	all free	all free	Global	Yes
79	8.5000	0.0000	3.5000	all free	all free	Global	Yes
80	11.8333	0.0000	3.5000	all free	all free	Global	Yes
81	15.1667	0.0000	3.5000	all free	all free	Global	Yes
82	19.0833	0.0000	3.5000	all free	all free	Global	Yes
83	23.0000	0.0000	3.5000	all free	all free	Global	Yes
84	26.2500	0.0000	3.5000	all free	all free	Global	Yes
85	27.3333	0.0000	3.5000	all free	all free	Global	Yes
86	29.5000	0.0000	3.5000	all free	all free	Global	Yes
87	34.5000	0.0000	3.5000	all free	all free	Global	Yes
88	39.5000	0.0000	3.5000	all free	all free	Global	Yes
89	44.0000	0.0000	3.5000	all free	all free	Global	Yes
90	47.2500	0.0000	3.5000	all free	all free	Global	Yes

INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
91	50.5000	0.0000	3.5000	all free	all free	Global	Yes
92	54.7083	0.0000	3.5000	all free	all free	Global	Yes
93	57.7500	0.0000	3.5000	all free	all free	Global	Yes
94	60.7917	0.0000	3.5000	all free	all free	Global	Yes
95	65.0000	0.0000	3.5000	all free	all free	Global	Yes
96	68.2500	0.0000	3.5000	all free	all free	Global	Yes
97	71.5000	0.0000	3.5000	all free	all free	Global	Yes
98	76.0000	0.0000	3.5000	all free	all free	Global	Yes
99	81.0000	0.0000	3.5000	all free	all free	Global	Yes
100	86.0000	0.0000	3.5000	all free	all free	Global	Yes
101	88.1667	0.0000	3.5000	all free	all free	Global	Yes
102	89.2500	0.0000	3.5000	all free	all free	Global	Yes
103	92.5000	0.0000	3.5000	all free	all free	Global	Yes
104	96.4167	0.0000	3.5000	all free	all free	Global	Yes
105	100.3333	0.0000	3.5000	all free	all free	Global	Yes
106	103.6667	0.0000	3.5000	all free	all free	Global	Yes
107	107.0000	0.0000	3.5000	all free	all free	Global	Yes
108	110.2500	0.0000	3.5000	all free	all free	Global	Yes
109	112.5000	0.0000	3.5000	all free	all free	Global	Yes
110	113.5000	0.0000	3.5000	all free	all free	Global	Yes
111	115.5000	0.0000	3.5000	all free	all free	Global	Yes
112	0.0000	0.0000	5.2500	all free	all free	Global	Yes
113	2.0000	0.0000	5.2500	all free	all free	Global	Yes
114	3.0000	0.0000	5.2500	all free	all free	Global	Yes
115	5.2500	0.0000	5.2500	all free	all free	Global	Yes
116	8.5000	0.0000	5.2500	all free	all free	Global	Yes
117	11.8333	0.0000	5.2500	all free	all free	Global	Yes
118	15.1667	0.0000	5.2500	all free	all free	Global	Yes
119	19.0833	0.0000	5.2500	all free	all free	Global	Yes
120	23.0000	0.0000	5.2500	all free	all free	Global	Yes
121	26.2500	0.0000	5.2500	all free	all free	Global	Yes
122	27.3333	0.0000	5.2500	all free	all free	Global	Yes
123	29.5000	0.0000	5.2500	all free	all free	Global	Yes
124	34.5000	0.0000	5.2500	all free	all free	Global	Yes
125	39.5000	0.0000	5.2500	all free	all free	Global	Yes
126	44.0000	0.0000	5.2500	all free	all free	Global	Yes
127	47.2500	0.0000	5.2500	all free	all free	Global	Yes
128	50.5000	0.0000	5.2500	all free	all free	Global	Yes
129	54.7083	0.0000	5.2500	all free	all free	Global	Yes
130	57.7500	0.0000	5.2500	all free	all free	Global	Yes
131	60.7917	0.0000	5.2500	all free	all free	Global	Yes
132	65.0000	0.0000	5.2500	all free	all free	Global	Yes
133	68.2500	0.0000	5.2500	all free	all free	Global	Yes
134	71.5000	0.0000	5.2500	all free	all free	Global	Yes
135	76.0000	0.0000	5.2500	all free	all free	Global	Yes
136	81.0000	0.0000	5.2500	all free	all free	Global	Yes
137	86.0000	0.0000	5.2500	all free	all free	Global	Yes
138	88.1667	0.0000	5.2500	all free	all free	Global	Yes
139	89.2500	0.0000	5.2500	all free	all free	Global	Yes

INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
140	92.5000	0.0000	5.2500	all free	all free	Global	Yes
141	96.4167	0.0000	5.2500	all free	all free	Global	Yes
142	100.3333	0.0000	5.2500	all free	all free	Global	Yes
143	103.6667	0.0000	5.2500	all free	all free	Global	Yes
144	107.0000	0.0000	5.2500	all free	all free	Global	Yes
145	110.2500	0.0000	5.2500	all free	all free	Global	Yes
146	112.5000	0.0000	5.2500	all free	all free	Global	Yes
147	113.5000	0.0000	5.2500	all free	all free	Global	Yes
148	115.5000	0.0000	5.2500	all free	all free	Global	Yes
149	0.0000	0.0000	7.0000	all free	all free	Global	Yes
150	2.0000	0.0000	7.0000	all free	all free	Global	Yes
151	3.0000	0.0000	7.0000	all free	all free	Global	Yes
152	5.2500	0.0000	7.0000	all free	all free	Global	Yes
153	8.5000	0.0000	7.0000	all free	all free	Global	Yes
154	11.8333	0.0000	7.0000	all free	all free	Global	Yes
155	15.1667	0.0000	7.0000	all free	all free	Global	Yes
156	19.0833	0.0000	7.0000	all free	all free	Global	Yes
157	23.0000	0.0000	7.0000	all free	all free	Global	Yes
158	26.2500	0.0000	7.0000	all free	all free	Global	Yes
159	27.3333	0.0000	7.0000	all free	all free	Global	Yes
160	29.5000	0.0000	7.0000	all free	all free	Global	Yes
161	34.5000	0.0000	7.0000	all free	all free	Global	Yes
162	39.5000	0.0000	7.0000	all free	all free	Global	Yes
163	44.0000	0.0000	7.0000	all free	all free	Global	Yes
164	47.2500	0.0000	7.0000	all free	all free	Global	Yes
165	50.5000	0.0000	7.0000	all free	all free	Global	Yes
166	54.7083	0.0000	7.0000	all free	all free	Global	Yes
167	57.7500	0.0000	7.0000	all free	all free	Global	Yes
168	60.7917	0.0000	7.0000	all free	all free	Global	Yes
169	65.0000	0.0000	7.0000	all free	all free	Global	Yes
170	68.2500	0.0000	7.0000	all free	all free	Global	Yes
171	71.5000	0.0000	7.0000	all free	all free	Global	Yes
172	76.0000	0.0000	7.0000	all free	all free	Global	Yes
173	81.0000	0.0000	7.0000	all free	all free	Global	Yes
174	86.0000	0.0000	7.0000	all free	all free	Global	Yes
175	88.1667	0.0000	7.0000	all free	all free	Global	Yes
176	89.2500	0.0000	7.0000	all free	all free	Global	Yes
177	92.5000	0.0000	7.0000	all free	all free	Global	Yes
178	96.4167	0.0000	7.0000	all free	all free	Global	Yes
179	100.3333	0.0000	7.0000	all free	all free	Global	Yes
180	103.6667	0.0000	7.0000	all free	all free	Global	Yes
181	107.0000	0.0000	7.0000	all free	all free	Global	Yes
182	110.2500	0.0000	7.0000	all free	all free	Global	Yes
183	112.5000	0.0000	7.0000	all free	all free	Global	Yes
184	113.5000	0.0000	7.0000	all free	all free	Global	Yes
185	115.5000	0.0000	7.0000	all free	all free	Global	Yes
186	0.0000	0.0000	8.5000	all free	all free	Global	Yes
187	2.0000	0.0000	8.5000	all free	all free	Global	Yes
188	3.0000	0.0000	8.5000	all free	all free	Global	Yes



INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
189	5.2500	0.0000	8.5000	all free	all free	Global	Yes
190	8.5000	0.0000	8.5000	all free	all free	Global	Yes
191	11.8333	0.0000	8.5000	all free	all free	Global	Yes
192	15.1667	0.0000	8.5000	all free	all free	Global	Yes
193	19.0833	0.0000	8.5000	all free	all free	Global	Yes
194	23.0000	0.0000	8.5000	all free	all free	Global	Yes
195	26.2500	0.0000	8.5000	all free	all free	Global	Yes
196	27.3333	0.0000	8.5000	all free	all free	Global	Yes
197	29.5000	0.0000	8.5000	all free	all free	Global	Yes
198	34.5000	0.0000	8.5000	all free	all free	Global	Yes
199	39.5000	0.0000	8.5000	all free	all free	Global	Yes
200	44.0000	0.0000	8.5000	all free	all free	Global	Yes
201	47.2500	0.0000	8.5000	all free	all free	Global	Yes
202	50.5000	0.0000	8.5000	all free	all free	Global	Yes
203	54.7083	0.0000	8.5000	all free	all free	Global	Yes
204	57.7500	0.0000	8.5000	all free	all free	Global	Yes
205	60.7917	0.0000	8.5000	all free	all free	Global	Yes
206	65.0000	0.0000	8.5000	all free	all free	Global	Yes
207	68.2500	0.0000	8.5000	all free	all free	Global	Yes
208	71.5000	0.0000	8.5000	all free	all free	Global	Yes
209	76.0000	0.0000	8.5000	all free	all free	Global	Yes
210	81.0000	0.0000	8.5000	all free	all free	Global	Yes
211	86.0000	0.0000	8.5000	all free	all free	Global	Yes
212	88.1667	0.0000	8.5000	all free	all free	Global	Yes
213	89.2500	0.0000	8.5000	all free	all free	Global	Yes
214	92.5000	0.0000	8.5000	all free	all free	Global	Yes
215	96.4167	0.0000	8.5000	all free	all free	Global	Yes
216	100.3333	0.0000	8.5000	all free	all free	Global	Yes
217	103.6667	0.0000	8.5000	all free	all free	Global	Yes
218	107.0000	0.0000	8.5000	all free	all free	Global	Yes
219	110.2500	0.0000	8.5000	all free	all free	Global	Yes
220	112.5000	0.0000	8.5000	all free	all free	Global	Yes
221	113.5000	0.0000	8.5000	all free	all free	Global	Yes
222	115.5000	0.0000	8.5000	all free	all free	Global	Yes
223	0.0000	0.0000	10.0000	all free	all free	Global	Yes
224	2.0000	0.0000	10.0000	all free	all free	Global	Yes
225	3.0000	0.0000	10.0000	all free	all free	Global	Yes
226	5.2500	0.0000	10.0000	all free	all free	Global	Yes
227	8.5000	0.0000	10.0000	all free	all free	Global	Yes
228	11.8333	0.0000	10.0000	all free	all free	Global	Yes
229	15.1667	0.0000	10.0000	all free	all free	Global	Yes
230	19.0833	0.0000	10.0000	all free	all free	Global	Yes
231	23.0000	0.0000	10.0000	all free	all free	Global	Yes
232	26.2500	0.0000	10.0000	all free	all free	Global	Yes
233	27.3333	0.0000	10.0000	all free	all free	Global	Yes
234	29.5000	0.0000	10.0000	all free	all free	Global	Yes
235	34.5000	0.0000	10.0000	all free	all free	Global	Yes
236	39.5000	0.0000	10.0000	all free	all free	Global	Yes
237	44.0000	0.0000	10.0000	all free	all free	Global	Yes



INPUT : Joints

ID	X (ft)	Y (ft)	Z (ft)	Translation DOF	Rotation DOF	Displacement UCS	Assignment
238	47.2500	0.0000	10.0000	all free	all free	Global	Yes
239	50.5000	0.0000	10.0000	all free	all free	Global	Yes
240	51.6667	0.0000	10.0000	all free	all free	Global	Yes
241	54.7083	0.0000	10.0000	all free	all free	Global	Yes
242	57.7500	0.0000	10.0000	all free	all free	Global	Yes
243	60.7917	0.0000	10.0000	all free	all free	Global	Yes
244	63.8333	0.0000	10.0000	all free	all free	Global	Yes
245	65.0000	0.0000	10.0000	all free	all free	Global	Yes
246	68.2500	0.0000	10.0000	all free	all free	Global	Yes
247	71.5000	0.0000	10.0000	all free	all free	Global	Yes
248	76.0000	0.0000	10.0000	all free	all free	Global	Yes
249	81.0000	0.0000	10.0000	all free	all free	Global	Yes
250	86.0000	0.0000	10.0000	all free	all free	Global	Yes
251	88.1667	0.0000	10.0000	all free	all free	Global	Yes
252	89.2500	0.0000	10.0000	all free	all free	Global	Yes
253	92.5000	0.0000	10.0000	all free	all free	Global	Yes
254	96.4167	0.0000	10.0000	all free	all free	Global	Yes
255	100.3333	0.0000	10.0000	all free	all free	Global	Yes
256	103.6667	0.0000	10.0000	all free	all free	Global	Yes
257	107.0000	0.0000	10.0000	all free	all free	Global	Yes
258	110.2500	0.0000	10.0000	all free	all free	Global	Yes
259	112.5000	0.0000	10.0000	all free	all free	Global	Yes
260	113.5000	0.0000	10.0000	all free	all free	Global	Yes
261	115.5000	0.0000	10.0000	all free	all free	Global	Yes
304	5.2500	0.0000	0.0000	all free	all free	Global	Yes
310	26.2500	0.0000	0.0000	all free	all free	Global	Yes
316	47.2500	0.0000	0.0000	all free	all free	Global	Yes
322	68.2500	0.0000	0.0000	all free	all free	Global	Yes
328	89.2500	0.0000	0.0000	all free	all free	Global	Yes
334	110.2500	0.0000	0.0000	all free	all free	Global	Yes
404	5.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
410	26.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
416	47.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
422	68.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
428	89.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes
434	110.2500	0.0000	-27.0000	all fixed	all fixed	Global	Yes

INPUT : Members

ID	I-Joint	J-Joint	Span	Type	Section at Start	Section at End	Material	Prestress Force (kips)	Length (ft)	Rigid Zone from	Rigid Zone from	Orientation Angle	Casting (day)	Structure Group
1	304	404	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
2	310	410	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
3	316	416	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
4	322	422	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
5	328	428	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)
6	334	434	-	Beam	Solid Circle	(same as	Fc_3.5	0.0000	27	0.0000	0.0000	0.0000	0	(none)

INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Casting (day)	Structure Group
1	Classic	Classic	1	2	39	38	Fc_3.5	12.0000	3.5	0	(none)
2	Classic	Classic	2	3	40	39	Fc_3.5	12.0000	1.75	0	(none)
3	Classic	Classic	3	4	41	40	Fc_3.5	12.0000	3.9375	0	(none)
4	Classic	Classic	4	5	42	41	Fc_3.5	12.0000	5.6875	0	(none)
5	Classic	Classic	5	6	43	42	Fc_3.5	12.0000	5.8333	0	(none)
6	Classic	Classic	6	7	44	43	Fc_3.5	12.0000	5.8333	0	(none)
7	Classic	Classic	7	8	45	44	Fc_3.5	12.0000	6.8542	0	(none)
8	Classic	Classic	8	9	46	45	Fc_3.5	12.0000	6.8542	0	(none)
9	Classic	Classic	9	10	47	46	Fc_3.5	12.0000	5.6875	0	(none)
10	Classic	Classic	10	11	48	47	Fc_3.5	12.0000	1.8958	0	(none)
11	Classic	Classic	11	12	49	48	Fc_3.5	12.0000	3.7917	0	(none)
12	Classic	Classic	12	13	50	49	Fc_3.5	12.0000	8.75	0	(none)
13	Classic	Classic	13	14	51	50	Fc_3.5	12.0000	8.75	0	(none)
14	Classic	Classic	14	15	52	51	Fc_3.5	12.0000	7.875	0	(none)
15	Classic	Classic	15	16	53	52	Fc_3.5	12.0000	5.6875	0	(none)
16	Classic	Classic	16	17	54	53	Fc_3.5	12.0000	5.6875	0	(none)
17	Classic	Classic	17	18	55	54	Fc_3.5	12.0000	7.3646	0	(none)
18	Classic	Classic	18	19	56	55	Fc_3.5	12.0000	5.3229	0	(none)
19	Classic	Classic	19	20	57	56	Fc_3.5	12.0000	5.3229	0	(none)
20	Classic	Classic	20	21	58	57	Fc_3.5	12.0000	7.3646	0	(none)
21	Classic	Classic	21	22	59	58	Fc_3.5	12.0000	5.6875	0	(none)
22	Classic	Classic	22	23	60	59	Fc_3.5	12.0000	5.6875	0	(none)
23	Classic	Classic	23	24	61	60	Fc_3.5	12.0000	7.875	0	(none)
24	Classic	Classic	24	25	62	61	Fc_3.5	12.0000	8.75	0	(none)
25	Classic	Classic	25	26	63	62	Fc_3.5	12.0000	8.75	0	(none)
26	Classic	Classic	26	27	64	63	Fc_3.5	12.0000	3.7917	0	(none)
27	Classic	Classic	27	28	65	64	Fc_3.5	12.0000	1.8958	0	(none)
28	Classic	Classic	28	29	66	65	Fc_3.5	12.0000	5.6875	0	(none)
29	Classic	Classic	29	30	67	66	Fc_3.5	12.0000	6.8542	0	(none)
30	Classic	Classic	30	31	68	67	Fc_3.5	12.0000	6.8542	0	(none)
31	Classic	Classic	31	32	69	68	Fc_3.5	12.0000	5.8333	0	(none)
32	Classic	Classic	32	33	70	69	Fc_3.5	12.0000	5.8333	0	(none)
33	Classic	Classic	33	34	71	70	Fc_3.5	12.0000	5.6875	0	(none)
34	Classic	Classic	34	35	72	71	Fc_3.5	12.0000	3.9375	0	(none)
35	Classic	Classic	35	36	73	72	Fc_3.5	12.0000	1.75	0	(none)
36	Classic	Classic	36	37	74	73	Fc_3.5	12.0000	3.5	0	(none)
37	Classic	Classic	38	39	76	75	Fc_3.5	12.0000	3.5	0	PLATES@PLAN
38	Classic	Classic	39	40	77	76	Fc_3.5	12.0000	1.75	0	PLATES@PLAN
39	Classic	Classic	40	41	78	77	Fc_3.5	12.0000	3.9375	0	PLATES@PLAN
40	Classic	Classic	41	42	79	78	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
41	Classic	Classic	42	43	80	79	Fc_3.5	12.0000	5.8333	0	PLATES@PLAN
42	Classic	Classic	43	44	81	80	Fc_3.5	12.0000	5.8333	0	PLATES@PLAN
43	Classic	Classic	44	45	82	81	Fc_3.5	12.0000	6.8542	0	PLATES@PLAN
44	Classic	Classic	45	46	83	82	Fc_3.5	12.0000	6.8542	0	PLATES@PLAN
45	Classic	Classic	46	47	84	83	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
46	Classic	Classic	47	48	85	84	Fc_3.5	12.0000	1.8958	0	PLATES@PLAN
47	Classic	Classic	48	49	86	85	Fc_3.5	12.0000	3.7917	0	PLATES@PLAN

INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Casting (day)	Structure Group
48	Classic	Classic	49	50	87	86	Fc_3.5	12.0000	8.75	0	PLATES@PLAN
49	Classic	Classic	50	51	88	87	Fc_3.5	12.0000	8.75	0	PLATES@PLAN
50	Classic	Classic	51	52	89	88	Fc_3.5	12.0000	7.875	0	PLATES@PLAN
51	Classic	Classic	52	53	90	89	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
52	Classic	Classic	53	54	91	90	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
53	Classic	Classic	54	55	92	91	Fc_3.5	12.0000	7.3646	0	PLATES@PLAN
54	Classic	Classic	55	56	93	92	Fc_3.5	12.0000	5.3229	0	PLATES@PLAN
55	Classic	Classic	56	57	94	93	Fc_3.5	12.0000	5.3229	0	PLATES@PLAN
56	Classic	Classic	57	58	95	94	Fc_3.5	12.0000	7.3646	0	PLATES@PLAN
57	Classic	Classic	58	59	96	95	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
58	Classic	Classic	59	60	97	96	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
59	Classic	Classic	60	61	98	97	Fc_3.5	12.0000	7.875	0	PLATES@PLAN
60	Classic	Classic	61	62	99	98	Fc_3.5	12.0000	8.75	0	PLATES@PLAN
61	Classic	Classic	62	63	100	99	Fc_3.5	12.0000	8.75	0	PLATES@PLAN
62	Classic	Classic	63	64	101	100	Fc_3.5	12.0000	3.7917	0	PLATES@PLAN
63	Classic	Classic	64	65	102	101	Fc_3.5	12.0000	1.8958	0	PLATES@PLAN
64	Classic	Classic	65	66	103	102	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
65	Classic	Classic	66	67	104	103	Fc_3.5	12.0000	6.8542	0	PLATES@PLAN
66	Classic	Classic	67	68	105	104	Fc_3.5	12.0000	6.8542	0	PLATES@PLAN
67	Classic	Classic	68	69	106	105	Fc_3.5	12.0000	5.8333	0	PLATES@PLAN
68	Classic	Classic	69	70	107	106	Fc_3.5	12.0000	5.8333	0	PLATES@PLAN
69	Classic	Classic	70	71	108	107	Fc_3.5	12.0000	5.6875	0	PLATES@PLAN
70	Classic	Classic	71	72	109	108	Fc_3.5	12.0000	3.9375	0	PLATES@PLAN
71	Classic	Classic	72	73	110	109	Fc_3.5	12.0000	1.75	0	PLATES@PLAN
72	Classic	Classic	73	74	111	110	Fc_3.5	12.0000	3.5	0	PLATES@PLAN
73	Classic	Classic	75	76	113	112	Fc_3.5	12.0000	3.5	0	(none)
74	Classic	Classic	76	77	114	113	Fc_3.5	12.0000	1.75	0	(none)
75	Classic	Classic	77	78	115	114	Fc_3.5	12.0000	3.9375	0	(none)
76	Classic	Classic	78	79	116	115	Fc_3.5	12.0000	5.6875	0	(none)
77	Classic	Classic	79	80	117	116	Fc_3.5	12.0000	5.8333	0	(none)
78	Classic	Classic	80	81	118	117	Fc_3.5	12.0000	5.8333	0	(none)
79	Classic	Classic	81	82	119	118	Fc_3.5	12.0000	6.8542	0	(none)
80	Classic	Classic	82	83	120	119	Fc_3.5	12.0000	6.8542	0	(none)
81	Classic	Classic	83	84	121	120	Fc_3.5	12.0000	5.6875	0	(none)
82	Classic	Classic	84	85	122	121	Fc_3.5	12.0000	1.8958	0	(none)
83	Classic	Classic	85	86	123	122	Fc_3.5	12.0000	3.7917	0	(none)
84	Classic	Classic	86	87	124	123	Fc_3.5	12.0000	8.75	0	(none)
85	Classic	Classic	87	88	125	124	Fc_3.5	12.0000	8.75	0	(none)
86	Classic	Classic	88	89	126	125	Fc_3.5	12.0000	7.875	0	(none)
87	Classic	Classic	89	90	127	126	Fc_3.5	12.0000	5.6875	0	(none)
88	Classic	Classic	90	91	128	127	Fc_3.5	12.0000	5.6875	0	(none)
89	Classic	Classic	91	92	129	128	Fc_3.5	12.0000	7.3646	0	(none)
90	Classic	Classic	92	93	130	129	Fc_3.5	12.0000	5.3229	0	(none)
91	Classic	Classic	93	94	131	130	Fc_3.5	12.0000	5.3229	0	(none)
92	Classic	Classic	94	95	132	131	Fc_3.5	12.0000	7.3646	0	(none)
93	Classic	Classic	95	96	133	132	Fc_3.5	12.0000	5.6875	0	(none)
94	Classic	Classic	96	97	134	133	Fc_3.5	12.0000	5.6875	0	(none)
95	Classic	Classic	97	98	135	134	Fc_3.5	12.0000	7.875	0	(none)
96	Classic	Classic	98	99	136	135	Fc_3.5	12.0000	8.75	0	(none)

INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Casting (day)	Structure Group
97	Classic	Classic	99	100	137	136	Fc_3.5	12.0000	8.75	0	(none)
98	Classic	Classic	100	101	138	137	Fc_3.5	12.0000	3.7917	0	(none)
99	Classic	Classic	101	102	139	138	Fc_3.5	12.0000	1.8958	0	(none)
100	Classic	Classic	102	103	140	139	Fc_3.5	12.0000	5.6875	0	(none)
101	Classic	Classic	103	104	141	140	Fc_3.5	12.0000	6.8542	0	(none)
102	Classic	Classic	104	105	142	141	Fc_3.5	12.0000	6.8542	0	(none)
103	Classic	Classic	105	106	143	142	Fc_3.5	12.0000	5.8333	0	(none)
104	Classic	Classic	106	107	144	143	Fc_3.5	12.0000	5.8333	0	(none)
105	Classic	Classic	107	108	145	144	Fc_3.5	12.0000	5.6875	0	(none)
106	Classic	Classic	108	109	146	145	Fc_3.5	12.0000	3.9375	0	(none)
107	Classic	Classic	109	110	147	146	Fc_3.5	12.0000	1.75	0	(none)
108	Classic	Classic	110	111	148	147	Fc_3.5	12.0000	3.5	0	(none)
109	Classic	Classic	112	113	150	149	Fc_3.5	12.0000	3.5	0	(none)
110	Classic	Classic	113	114	151	150	Fc_3.5	12.0000	1.75	0	(none)
111	Classic	Classic	114	115	152	151	Fc_3.5	12.0000	3.9375	0	(none)
112	Classic	Classic	115	116	153	152	Fc_3.5	12.0000	5.6875	0	(none)
113	Classic	Classic	116	117	154	153	Fc_3.5	12.0000	5.8333	0	(none)
114	Classic	Classic	117	118	155	154	Fc_3.5	12.0000	5.8333	0	(none)
115	Classic	Classic	118	119	156	155	Fc_3.5	12.0000	6.8542	0	(none)
116	Classic	Classic	119	120	157	156	Fc_3.5	12.0000	6.8542	0	(none)
117	Classic	Classic	120	121	158	157	Fc_3.5	12.0000	5.6875	0	(none)
118	Classic	Classic	121	122	159	158	Fc_3.5	12.0000	1.8958	0	(none)
119	Classic	Classic	122	123	160	159	Fc_3.5	12.0000	3.7917	0	(none)
120	Classic	Classic	123	124	161	160	Fc_3.5	12.0000	8.75	0	(none)
121	Classic	Classic	124	125	162	161	Fc_3.5	12.0000	8.75	0	(none)
122	Classic	Classic	125	126	163	162	Fc_3.5	12.0000	7.875	0	(none)
123	Classic	Classic	126	127	164	163	Fc_3.5	12.0000	5.6875	0	(none)
124	Classic	Classic	127	128	165	164	Fc_3.5	12.0000	5.6875	0	(none)
125	Classic	Classic	128	129	166	165	Fc_3.5	12.0000	7.3646	0	(none)
126	Classic	Classic	129	130	167	166	Fc_3.5	12.0000	5.3229	0	(none)
127	Classic	Classic	130	131	168	167	Fc_3.5	12.0000	5.3229	0	(none)
128	Classic	Classic	131	132	169	168	Fc_3.5	12.0000	7.3646	0	(none)
129	Classic	Classic	132	133	170	169	Fc_3.5	12.0000	5.6875	0	(none)
130	Classic	Classic	133	134	171	170	Fc_3.5	12.0000	5.6875	0	(none)
131	Classic	Classic	134	135	172	171	Fc_3.5	12.0000	7.875	0	(none)
132	Classic	Classic	135	136	173	172	Fc_3.5	12.0000	8.75	0	(none)
133	Classic	Classic	136	137	174	173	Fc_3.5	12.0000	8.75	0	(none)
134	Classic	Classic	137	138	175	174	Fc_3.5	12.0000	3.7917	0	(none)
135	Classic	Classic	138	139	176	175	Fc_3.5	12.0000	1.8958	0	(none)
136	Classic	Classic	139	140	177	176	Fc_3.5	12.0000	5.6875	0	(none)
137	Classic	Classic	140	141	178	177	Fc_3.5	12.0000	6.8542	0	(none)
138	Classic	Classic	141	142	179	178	Fc_3.5	12.0000	6.8542	0	(none)
139	Classic	Classic	142	143	180	179	Fc_3.5	12.0000	5.8333	0	(none)
140	Classic	Classic	143	144	181	180	Fc_3.5	12.0000	5.8333	0	(none)
141	Classic	Classic	144	145	182	181	Fc_3.5	12.0000	5.6875	0	(none)
142	Classic	Classic	145	146	183	182	Fc_3.5	12.0000	3.9375	0	(none)
143	Classic	Classic	146	147	184	183	Fc_3.5	12.0000	1.75	0	(none)
144	Classic	Classic	147	148	185	184	Fc_3.5	12.0000	3.5	0	(none)
145	Classic	Classic	149	150	187	186	Fc_3.5	12.0000	3	0	(none)

INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Castin g (day)	Structure Group
146	Classic	Classic	150	151	188	187	Fc_3.5	12.0000	1.5	0	(none)
147	Classic	Classic	151	152	189	188	Fc_3.5	12.0000	3.375	0	(none)
148	Classic	Classic	152	153	190	189	Fc_3.5	12.0000	4.875	0	(none)
149	Classic	Classic	153	154	191	190	Fc_3.5	12.0000	5.	0	(none)
150	Classic	Classic	154	155	192	191	Fc_3.5	12.0000	5.	0	(none)
151	Classic	Classic	155	156	193	192	Fc_3.5	12.0000	5.875	0	(none)
152	Classic	Classic	156	157	194	193	Fc_3.5	12.0000	5.875	0	(none)
153	Classic	Classic	157	158	195	194	Fc_3.5	12.0000	4.875	0	(none)
154	Classic	Classic	158	159	196	195	Fc_3.5	12.0000	1.625	0	(none)
155	Classic	Classic	159	160	197	196	Fc_3.5	12.0000	3.25	0	(none)
156	Classic	Classic	160	161	198	197	Fc_3.5	12.0000	7.5	0	(none)
157	Classic	Classic	161	162	199	198	Fc_3.5	12.0000	7.5	0	(none)
158	Classic	Classic	162	163	200	199	Fc_3.5	12.0000	6.75	0	(none)
159	Classic	Classic	163	164	201	200	Fc_3.5	12.0000	4.875	0	(none)
160	Classic	Classic	164	165	202	201	Fc_3.5	12.0000	4.875	0	(none)
161	Classic	Classic	165	166	203	202	Fc_3.5	12.0000	6.3125	0	(none)
162	Classic	Classic	166	167	204	203	Fc_3.5	12.0000	4.5625	0	(none)
163	Classic	Classic	167	168	205	204	Fc_3.5	12.0000	4.5625	0	(none)
164	Classic	Classic	168	169	206	205	Fc_3.5	12.0000	6.3125	0	(none)
165	Classic	Classic	169	170	207	206	Fc_3.5	12.0000	4.875	0	(none)
166	Classic	Classic	170	171	208	207	Fc_3.5	12.0000	4.875	0	(none)
167	Classic	Classic	171	172	209	208	Fc_3.5	12.0000	6.75	0	(none)
168	Classic	Classic	172	173	210	209	Fc_3.5	12.0000	7.5	0	(none)
169	Classic	Classic	173	174	211	210	Fc_3.5	12.0000	7.5	0	(none)
170	Classic	Classic	174	175	212	211	Fc_3.5	12.0000	3.25	0	(none)
171	Classic	Classic	175	176	213	212	Fc_3.5	12.0000	1.625	0	(none)
172	Classic	Classic	176	177	214	213	Fc_3.5	12.0000	4.875	0	(none)
173	Classic	Classic	177	178	215	214	Fc_3.5	12.0000	5.875	0	(none)
174	Classic	Classic	178	179	216	215	Fc_3.5	12.0000	5.875	0	(none)
175	Classic	Classic	179	180	217	216	Fc_3.5	12.0000	5.	0	(none)
176	Classic	Classic	180	181	218	217	Fc_3.5	12.0000	5.	0	(none)
177	Classic	Classic	181	182	219	218	Fc_3.5	12.0000	4.875	0	(none)
178	Classic	Classic	182	183	220	219	Fc_3.5	12.0000	3.375	0	(none)
179	Classic	Classic	183	184	221	220	Fc_3.5	12.0000	1.5	0	(none)
180	Classic	Classic	184	185	222	221	Fc_3.5	12.0000	3	0	(none)
181	Classic	Classic	186	187	224	223	Fc_3.5	12.0000	3	0	(none)
182	Classic	Classic	187	188	225	224	Fc_3.5	12.0000	1.5	0	(none)
183	Classic	Classic	188	189	226	225	Fc_3.5	12.0000	3.375	0	(none)
184	Classic	Classic	189	190	227	226	Fc_3.5	12.0000	4.875	0	(none)
185	Classic	Classic	190	191	228	227	Fc_3.5	12.0000	5.	0	(none)
186	Classic	Classic	191	192	229	228	Fc_3.5	12.0000	5.	0	(none)
187	Classic	Classic	192	193	230	229	Fc_3.5	12.0000	5.875	0	(none)
188	Classic	Classic	193	194	231	230	Fc_3.5	12.0000	5.875	0	(none)
189	Classic	Classic	194	195	232	231	Fc_3.5	12.0000	4.875	0	(none)
190	Classic	Classic	195	196	233	232	Fc_3.5	12.0000	1.625	0	(none)
191	Classic	Classic	196	197	234	233	Fc_3.5	12.0000	3.25	0	(none)
192	Classic	Classic	197	198	235	234	Fc_3.5	12.0000	7.5	0	(none)
193	Classic	Classic	198	199	236	235	Fc_3.5	12.0000	7.5	0	(none)
194	Classic	Classic	199	200	237	236	Fc_3.5	12.0000	6.75	0	(none)

INPUT : Plates

ID	Bending Type	Membrane Type	I-Joint	J-Joint	K-Joint	L-Joint	Material	Thickness (in)	Area (ft²)	Casting (day)	Structure Group
195	Classic	Classic	200	201	238	237	Fc_3.5	12.0000	4.875	0	(none)
196	Classic	Classic	201	202	239	238	Fc_3.5	12.0000	4.875	0	(none)
197	Classic	Classic	202	203	241	240	Fc_3.5	12.0000	5.4375	0	(none)
198	Classic	Classic	203	204	242	241	Fc_3.5	12.0000	4.5625	0	(none)
199	Classic	Classic	204	205	243	242	Fc_3.5	12.0000	4.5625	0	(none)
200	Classic	Classic	205	206	244	243	Fc_3.5	12.0000	5.4375	0	(none)
201	Classic	Classic	206	207	246	245	Fc_3.5	12.0000	4.875	0	(none)
202	Classic	Classic	207	208	247	246	Fc_3.5	12.0000	4.875	0	(none)
203	Classic	Classic	208	209	248	247	Fc_3.5	12.0000	6.75	0	(none)
204	Classic	Classic	209	210	249	248	Fc_3.5	12.0000	7.5	0	(none)
205	Classic	Classic	210	211	250	249	Fc_3.5	12.0000	7.5	0	(none)
206	Classic	Classic	211	212	251	250	Fc_3.5	12.0000	3.25	0	(none)
207	Classic	Classic	212	213	252	251	Fc_3.5	12.0000	1.625	0	(none)
208	Classic	Classic	213	214	253	252	Fc_3.5	12.0000	4.875	0	(none)
209	Classic	Classic	214	215	254	253	Fc_3.5	12.0000	5.875	0	(none)
210	Classic	Classic	215	216	255	254	Fc_3.5	12.0000	5.875	0	(none)
211	Classic	Classic	216	217	256	255	Fc_3.5	12.0000	5.	0	(none)
212	Classic	Classic	217	218	257	256	Fc_3.5	12.0000	5.	0	(none)
213	Classic	Classic	218	219	258	257	Fc_3.5	12.0000	4.875	0	(none)
214	Classic	Classic	219	220	259	258	Fc_3.5	12.0000	3.375	0	(none)
215	Classic	Classic	220	221	260	259	Fc_3.5	12.0000	1.5	0	(none)
216	Classic	Classic	221	222	261	260	Fc_3.5	12.0000	3	0	(none)
217	Classic	Classic	202	240	239	(none)	Fc_3.5	12.0000	.875	0	(none)
218	Classic	Classic	206	245	244	(none)	Fc_3.5	12.0000	.875	0	(none)

INPUT : Rigid Links

Name	Joint 1	Joint 2
C1_1	2	304
C1_2	3	304
C1_4	5	304
C2_1	9	310
C2_3	11	310
C2_4	12	310
C3_1	15	316
C3_3	17	316
C4_1	21	322
C4_5	23	322
C5_1	26	328
C5_2	27	328
C5_4	29	328
C6_1	33	334
C6_3	35	334
C6_4	36	334

INPUT : More Material Properties

Name	Yield Stress (kips/in ²)	Post-yield to Initial Slope Ratio	Concrete Strength Specimen	Concrete fc28 or Steel Fu (kips/in ²)	Concrete Cement Hardening Type	Tendon GUTS (kips/in ²)	Material Time- Effect	Assigned
Fc_3.5	0.00	0.020	Cylinder	3.00	Normal	0.00	(NONE)	Yes

STRUCTURE GROUP SUMMARY

Bearings									
Joints									
225	229	233	236	240	244	248	251	255	259

PLATES@PLANE									
Joints									
38	39	40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55	56	57
58	59	60	61	62	63	64	65	66	67
68	69	70	71	72	73	74	75	76	77
78	79	80	81	82	83	84	85	86	87
88	89	90	91	92	93	94	95	96	97
98	99	100	101	102	103	104	105	106	107
108	109	110	111						
Plates									
37	38	39	40	41	42	43	44	45	46
47	48	49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64	65	66
67	68	69	70	71	72				

Load Cases

ID	Name	Analysis Type	Class	Status	Weight Factor X	Weight Factor Y	Weight Factor Z	Is Dynamic	Assigned to Load	# of Joint Load	# of Support	# of Member	# of Member	# of Plate Load	# of Moving	# of THA Load	# of THA Initial
1	Selfweight	Static	None	Acti	0.0000	0.0000	###	No	No	0	0	0	0	0	0	0	0
2	SuperDC	Static	None	Acti	0.0000	0.0000	0.0000	No	No	10	0	0	0	0	0	0	0
3	LL1	Static	None	Acti	0.0000	0.0000	0.0000	No	No	3	0	0	0	0	0	0	0
4	LL2	Static	None	Acti	0.0000	0.0000	0.0000	No	No	5	0	0	0	0	0	0	0
5	LL3	Static	None	Acti	0.0000	0.0000	0.0000	No	No	4	0	0	0	0	0	0	0
6	LL4	Static	None	Acti	0.0000	0.0000	0.0000	No	No	5	0	0	0	0	0	0	0
7	LL5	Static	None	Acti	0.0000	0.0000	0.0000	No	No	10	0	0	0	0	0	0	0
8	LL6	Static	None	Acti	0.0000	0.0000	0.0000	No	No	2	0	0	0	0	0	0	0
9	Eq4	Static	None	Acti	0.0000	0.0000	0.0000	No	No	10	0	0	0	0	0	0	0
10	FLL1	Static	None	Acti	0.0000	0.0000	0.0000	No	No	2	0	0	0	0	0	0	0
11	FLL2	Static	None	Acti	0.0000	0.0000	0.0000	No	No	2	0	0	0	0	0	0	0
12	FLL3	Static	None	Acti	0.0000	0.0000	0.0000	No	No	2	0	0	0	0	0	0	0
13	FLL4	Static	None	Acti	0.0000	0.0000	0.0000	No	No	2	0	0	0	0	0	0	0
14	FLL5	Static	None	Acti	0.0000	0.0000	0.0000	No	No	2	0	0	0	0	0	0	0
15	FLL6	Static	None	Acti	0.0000	0.0000	0.0000	No	No	3	0	0	0	0	0	0	0
16	FLL7	Static	None	Acti	0.0000	0.0000	0.0000	No	No	3	0	0	0	0	0	0	0
17	FLL8	Static	None	Acti	0.0000	0.0000	0.0000	No	No	3	0	0	0	0	0	0	0
18	FLL9	Static	None	Acti	0.0000	0.0000	0.0000	No	No	3	0	0	0	0	0	0	0

LOAD CASE SuperDC, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-106.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-111.0000	0.0000	0.0000	0.0000



LOAD CASE SuperDC, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
233	0.0000	0.0000	-115.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-116.0000	0.0000	0.0000	0.0000
240	0.0000	0.0000	-117.0000	0.0000	0.0000	0.0000
244	0.0000	0.0000	-117.0000	0.0000	0.0000	0.0000
248	0.0000	0.0000	-116.0000	0.0000	0.0000	0.0000
251	0.0000	0.0000	-115.0000	0.0000	0.0000	0.0000
255	0.0000	0.0000	-114.0000	0.0000	0.0000	0.0000
259	0.0000	0.0000	-103.0000	0.0000	0.0000	0.0000

LOAD CASE LL1, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-7.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-40.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-7.0000	0.0000	0.0000	0.0000

LOAD CASE LL2, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-33.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-17.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-33.0000	0.0000	0.0000	0.0000
240	0.0000	0.0000	-1.0000	0.0000	0.0000	0.0000

LOAD CASE LL3, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-30.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-38.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-37.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-9.0000	0.0000	0.0000	0.0000

LOAD CASE LL4, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-23.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-28.0000	0.0000	0.0000	0.0000
240	0.0000	0.0000	-7.0000	0.0000	0.0000	0.0000

LOAD CASE LL5, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-23.0000	0.0000	0.0000	0.0000



LOAD CASE LL5, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
229	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-28.0000	0.0000	0.0000	0.0000
240	0.0000	0.0000	-10.0000	0.0000	0.0000	0.0000
244	0.0000	0.0000	-26.0000	0.0000	0.0000	0.0000
248	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
251	0.0000	0.0000	-29.0000	0.0000	0.0000	0.0000
255	0.0000	0.0000	-25.0000	0.0000	0.0000	0.0000
259	0.0000	0.0000	-3.0000	0.0000	0.0000	0.0000

LOAD CASE LL6, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
240	0.0000	0.0000	-27.0000	0.0000	0.0000	0.0000
244	0.0000	0.0000	-27.0000	0.0000	0.0000	0.0000

LOAD CASE Eq4, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000
229	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000
233	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000
236	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000
240	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000
244	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000
248	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000
251	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000
255	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000
259	23.0000	4.0000	-18.0000	0.0000	0.0000	0.0000

LOAD CASE FLL1, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000

LOAD CASE FLL2, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
233	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000

LOAD CASE FLL3, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
233	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000



LOAD CASE FLL3, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
236	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000

LOAD CASE FLL4, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
240	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000

LOAD CASE FLL5, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
240	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000
244	0.0000	0.0000	-5.0000	0.0000	0.0000	0.0000

LOAD CASE FLL6, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
225	0.0000	0.0000	-2.0000	0.0000	0.0000	0.0000
229	0.0000	0.0000	-8.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-2.0000	0.0000	0.0000	0.0000

LOAD CASE FLL7, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
229	0.0000	0.0000	-2.0000	0.0000	0.0000	0.0000
233	0.0000	0.0000	-8.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-2.0000	0.0000	0.0000	0.0000

LOAD CASE FLL8, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
233	0.0000	0.0000	-2.0000	0.0000	0.0000	0.0000
236	0.0000	0.0000	-8.0000	0.0000	0.0000	0.0000
240	0.0000	0.0000	-2.0000	0.0000	0.0000	0.0000

LOAD CASE FLL9, Joint Loads

Joint	X-Force (kips)	Y-Force (kips)	Z-Force (kips)	X-Moment (kips-ft)	Y-Moment (kips-ft)	Z-Moment (kips-ft)
236	0.0000	0.0000	-2.0000	0.0000	0.0000	0.0000
239	0.0000	0.0000	-8.0000	0.0000	0.0000	0.0000
244	0.0000	0.0000	-2.0000	0.0000	0.0000	0.0000



POST-COMPUTED RESULT CASES SUMMARY

Extreme Effect Group: LLMaxMin

Allow Positive Minimum/Negative	Yes		
Load Class	None		
Case	Factor	Load Class	Incremental
LL1	1	None	No
LL2	1	None	No
LL3	1	None	No
LL4	1	None	No
LL5	1	None	No
LL6	1	None	No

Extreme Effect Group: Fatigue

Allow Positive Minimum/Negative	Yes		
Load Class	None		
Case	Factor	Load Class	Incremental
FLL1	1	None	No
FLL2	1	None	No
FLL3	1	None	No
FLL4	1	None	No
FLL5	1	None	No
FLL6	1	None	No
FLL7	1	None	No
FLL8	1	None	No
FLL9	1	None	No

Linear Result Combination: Str1 Max

Load Class	None		
Case	Factor	Load Class	Incremental
Selfweight	1.25	None	No
SuperDC	1.25	None	No
LLMaxMin	1.75	None	No

Linear Result Combination: Service DC

Load Class	None		
Case	Factor	Load Class	Incremental
Selfweight	1	None	No
SuperDC	1	None	No

Linear Result Combination: ExtremeEvent1

Load Class	None		
Case	Factor	Load Class	Incremental
Selfweight	1	None	No
SuperDC	1	None	No
Eq4	1	None	No

Linear Result Combination: Fatigue I

Load Class	None		
Case	Factor	Load Class	Incremental
Selfweight	1	None	No
SuperDC	1	None	No
Fatigue	1.75	None	No



Result Cases Summary

Load Cases: Selfweight

Solved: 10/3/2019

Load Class: None

Load Cases: SuperDC

Solved: 10/3/2019

Load Class: None

Load Cases: LL1

Solved: 10/3/2019

Load Class: None

Load Cases: LL2

Solved: 10/3/2019

Load Class: None

Load Cases: LL3

Solved: 10/3/2019

Load Class: None

Load Cases: LL4

Solved: 10/3/2019

Load Class: None

Load Cases: LL5

Solved: 10/3/2019

Load Class: None

Load Cases: LL6

Solved: 10/3/2019

Load Class: None

Load Cases: Eq4

Solved: 10/3/2019

Load Class: None

Load Cases: FLL1

Solved: 10/3/2019

Load Class: None

Load Cases: FLL2

Solved: 10/3/2019

Load Class: None

Load Cases: FLL3

Solved: 10/3/2019

Load Class: None

Load Cases: FLL4

Solved: 10/3/2019

Load Class: None

Load Cases: FLL5

Solved: 10/3/2019

Load Class: None

Load Cases: FLL6

Solved: 10/3/2019

Load Class: None

Load Cases: FLL7

Solved: 10/3/2019

Load Class: None

Load Cases: FLL8



Solved: 10/3/2019

Load Class: None

Load Cases: FLL9

Solved: 10/3/2019

Load Class: None

Extreme Effect Groups: LLMaxMin

Load Cases: LL1

Solved: 10/3/2019

Load Class: None

Load Cases: LL2

Solved: 10/3/2019

Load Class: None

Load Cases: LL3

Solved: 10/3/2019

Load Class: None

Load Cases: LL4

Solved: 10/3/2019

Load Class: None

Load Cases: LL5

Solved: 10/3/2019

Load Class: None

Load Cases: LL6

Solved: 10/3/2019

Load Class: None

Extreme Effect Groups: Fatigue

Load Cases: FLL1

Solved: 10/3/2019

Load Class: None

Load Cases: FLL2

Solved: 10/3/2019

Load Class: None

Load Cases: FLL3

Solved: 10/3/2019

Load Class: None

Load Cases: FLL4

Solved: 10/3/2019

Load Class: None

Load Cases: FLL5

Solved: 10/3/2019

Load Class: None

Load Cases: FLL6

Solved: 10/3/2019

Load Class: None

Load Cases: FLL7

Solved: 10/3/2019

Load Class: None

Load Cases: FLL8

Solved: 10/3/2019

Load Class: None

Load Cases: FLL9

Solved: 10/3/2019



Load Class: None

Linear Combinations: Str1 Max

Load Cases: Selfweight * 1.25

Solved: 10/3/2019

Load Class: None

Load Cases: SuperDC * 1.25

Solved: 10/3/2019

Load Class: None

Extreme Effect Groups: LLMaxMin * 1.75

Load Cases: LL1

Solved: 10/3/2019

Load Class: None

Load Cases: LL2

Solved: 10/3/2019

Load Class: None

Load Cases: LL3

Solved: 10/3/2019

Load Class: None

Load Cases: LL4

Solved: 10/3/2019

Load Class: None

Load Cases: LL5

Solved: 10/3/2019

Load Class: None

Load Cases: LL6

Solved: 10/3/2019

Load Class: None

Linear Combinations: ExtremeEvent1

Load Cases: Selfweight

Solved: 10/3/2019

Load Class: None

Load Cases: SuperDC

Solved: 10/3/2019

Load Class: None

Load Cases: Eq4

Solved: 10/3/2019

Load Class: None

Linear Combinations: Fatigue I

Load Cases: Selfweight

Solved: 10/3/2019

Load Class: None

Load Cases: SuperDC

Solved: 10/3/2019

Load Class: None

Extreme Effect Groups: Fatigue * 1.75

Load Cases: FLL1

Solved: 10/3/2019

Load Class: None

Load Cases: FLL2

Solved: 10/3/2019

Load Class: None



Load Cases: FLL3
 Solved: 10/3/2019
 Load Class: None

Load Cases: FLL4
 Solved: 10/3/2019
 Load Class: None

Load Cases: FLL5
 Solved: 10/3/2019
 Load Class: None

Load Cases: FLL6
 Solved: 10/3/2019
 Load Class: None

Load Cases: FLL7
 Solved: 10/3/2019
 Load Class: None

Load Cases: FLL8
 Solved: 10/3/2019
 Load Class: None

Load Cases: FLL9
 Solved: 10/3/2019
 Load Class: None

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
1	Selfweight	-0.3762	-1.2437	0.6160	0.0000	0.0000	0.0000	0.0000	0.0000
1	SuperDC	-3.5743	-11.6709	5.7821	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL1	-0.3764	-1.5625	0.6398	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL2	-0.2330	-0.9780	0.3952	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL3	-1.0854	-3.6948	1.7709	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL4	-0.7973	-2.6686	1.2956	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL5	-0.7881	-2.6219	1.2787	0.0000	0.0000	0.0000	0.0000	0.0000
1	LL6	0.0261	0.1296	-0.0471	0.0000	0.0000	0.0000	0.0000	0.0000
1	Eq4	-2.1516	-9.6304	3.8613	-0.2603	4.4512	-0.6119	-1.2537	-1.7661
1	FLL1	-0.1811	-0.6054	0.2947	0.0000	0.0000	0.0000	0.0000	0.0000
1	FLL2	-0.0166	-0.1025	0.0311	0.0000	0.0000	0.0000	0.0000	0.0000
1	FLL3	0.0096	0.0399	-0.0166	0.0000	0.0000	0.0000	0.0000	0.0000
1	FLL4	0.0103	0.0490	-0.0184	0.0000	0.0000	0.0000	0.0000	0.0000
1	FLL5	0.0048	0.0240	-0.0087	0.0000	0.0000	0.0000	0.0000	0.0000
1	FLL6	-0.0944	-0.3711	0.1586	0.0000	0.0000	0.0000	0.0000	0.0000
1	FLL7	-0.0007	-0.0191	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000
1	FLL8	0.0135	0.0615	-0.0239	0.0000	0.0000	0.0000	0.0000	0.0000
1	FLL9	0.0092	0.0446	-0.0165	0.0000	0.0000	0.0000	0.0000	0.0000
2	Selfweight	-0.0501	-3.8221	-0.2311	0.0000	0.0000	0.0000	0.0000	0.0000
2	SuperDC	-0.3529	-31.0627	-0.2009	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL1	-0.0834	-4.5214	-0.6195	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL2	-0.0482	-3.0654	-0.3296	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL3	-0.1272	-9.9320	-0.3489	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL4	-0.0857	-7.2297	-0.1422	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL5	-0.0833	-7.0975	-0.1101	0.0000	0.0000	0.0000	0.0000	0.0000
2	LL6	0.0081	0.3458	0.0941	0.0000	0.0000	0.0000	0.0000	0.0000
2	Eq4	-0.4674	-19.6838	-7.0736	1.2386	6.7091	0.3903	-0.4497	3.6090



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
2	FLL1	-0.0213	-1.5697	-0.0540	0.0000	0.0000	0.0000	0.0000	0.0000
2	FLL2	-0.0071	-0.3616	-0.0755	0.0000	0.0000	0.0000	0.0000	0.0000
2	FLL3	0.0037	0.0628	0.0336	0.0000	0.0000	0.0000	0.0000	0.0000
2	FLL4	0.0034	0.1185	0.0370	0.0000	0.0000	0.0000	0.0000	0.0000
2	FLL5	0.0015	0.0640	0.0174	0.0000	0.0000	0.0000	0.0000	0.0000
2	FLL6	-0.0181	-1.0522	-0.1192	0.0000	0.0000	0.0000	0.0000	0.0000
2	FLL7	-0.0003	-0.1292	-0.0097	0.0000	0.0000	0.0000	0.0000	0.0000
2	FLL8	0.0047	0.1324	0.0481	0.0000	0.0000	0.0000	0.0000	0.0000
2	FLL9	0.0030	0.1129	0.0332	0.0000	0.0000	0.0000	0.0000	0.0000
3	Selfweight	-0.2607	-1.3392	-1.4838	0.0000	0.0000	0.0000	0.0000	0.0000
3	SuperDC	-1.4247	-11.3509	-9.3428	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL1	-0.5044	-1.5898	-1.9970	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL2	-0.3248	-1.0049	-1.4835	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL3	-0.5837	-3.6228	-3.2258	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL4	-0.3844	-2.6111	-2.3321	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL5	-0.3675	-2.5624	-2.2684	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL6	0.0508	0.1337	0.1552	0.0000	0.0000	0.0000	0.0000	0.0000
3	Eq4	-2.3009	-10.1699	-4.6536	0.6441	4.1329	0.9867	1.3630	-0.7523
3	FLL1	-0.0877	-0.5896	-0.4621	0.0000	0.0000	0.0000	0.0000	0.0000
3	FLL2	-0.0564	-0.1112	-0.2239	0.0000	0.0000	0.0000	0.0000	0.0000
3	FLL3	0.0142	0.0387	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000
3	FLL4	0.0190	0.0499	0.0459	0.0000	0.0000	0.0000	0.0000	0.0000
3	FLL5	0.0094	0.0248	0.0287	0.0000	0.0000	0.0000	0.0000	0.0000
3	FLL6	-0.1042	-0.3740	-0.4339	0.0000	0.0000	0.0000	0.0000	0.0000
3	FLL7	-0.0154	-0.0243	-0.1085	0.0000	0.0000	0.0000	0.0000	0.0000
3	FLL8	0.0231	0.0617	0.0403	0.0000	0.0000	0.0000	0.0000	0.0000
3	FLL9	0.0175	0.0457	0.0470	0.0000	0.0000	0.0000	0.0000	0.0000
4	Selfweight	-0.1189	-1.8626	1.0001	0.0000	0.0000	0.0000	0.0000	0.0000
4	SuperDC	-2.3304	-12.8050	7.2751	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL1	0.3312	-2.5810	0.9914	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL2	0.0944	-2.3737	0.8844	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL3	-0.4196	-4.2281	2.2386	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL4	-0.4448	-3.2777	1.7331	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL5	-0.4727	-3.2153	1.7120	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL6	-0.0837	0.1037	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
4	Eq4	7.9720	12.4372	-3.2406	0.8807	4.8100	-0.1864	-1.7463	1.1143
4	FLL1	-0.0619	-0.5153	0.3112	0.0000	0.0000	0.0000	0.0000	0.0000
4	FLL2	0.0516	-0.3560	0.1097	0.0000	0.0000	0.0000	0.0000	0.0000
4	FLL3	-0.0396	-0.1055	0.0370	0.0000	0.0000	0.0000	0.0000	0.0000
4	FLL4	-0.0355	0.0005	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
4	FLL5	-0.0155	0.0192	-0.0059	0.0000	0.0000	0.0000	0.0000	0.0000
4	FLL6	0.0491	-0.5579	0.2302	0.0000	0.0000	0.0000	0.0000	0.0000
4	FLL7	-0.0072	-0.2599	0.0845	0.0000	0.0000	0.0000	0.0000	0.0000
4	FLL8	-0.0498	-0.0510	0.0190	0.0000	0.0000	0.0000	0.0000	0.0000
4	FLL9	-0.0307	0.0162	-0.0042	0.0000	0.0000	0.0000	0.0000	0.0000
5	Selfweight	0.6159	-2.0593	-1.1946	0.0000	0.0000	0.0000	0.0000	0.0000
5	SuperDC	-0.8699	-14.7066	-8.6104	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL1	3.2586	-2.7637	-2.0083	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL2	2.0046	-2.5864	-1.8929	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
5	LL3	1.2170	-4.7517	-2.9217	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL4	0.3916	-3.7165	-2.2830	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL5	0.2215	-3.6613	-2.2360	0.0000	0.0000	0.0000	0.0000	0.0000
5	LL6	-0.4478	0.0832	0.0754	0.0000	0.0000	0.0000	0.0000	0.0000
5	Eq4	31.9120	16.5491	12.4580	0.5530	4.2691	1.6069	1.9333	1.9303
5	FLL1	0.1230	-0.5868	-0.3289	0.0000	0.0000	0.0000	0.0000	0.0000
5	FLL2	0.4590	-0.3752	-0.2961	0.0000	0.0000	0.0000	0.0000	0.0000
5	FLL3	-0.1173	-0.1219	-0.0902	0.0000	0.0000	0.0000	0.0000	0.0000
5	FLL4	-0.1627	-0.0099	-0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
5	FLL5	-0.0829	0.0154	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000
5	FLL6	0.6088	-0.6028	-0.4243	0.0000	0.0000	0.0000	0.0000	0.0000
5	FLL7	0.1279	-0.2810	-0.2170	0.0000	0.0000	0.0000	0.0000	0.0000
5	FLL8	-0.1970	-0.0680	-0.0471	0.0000	0.0000	0.0000	0.0000	0.0000
5	FLL9	-0.1504	0.0079	0.0099	0.0000	0.0000	0.0000	0.0000	0.0000
6	Selfweight	2.0733	0.4186	0.2013	0.0000	0.0000	0.0000	0.0000	0.0000
6	SuperDC	10.4187	1.8561	0.8459	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL1	6.6140	0.2874	-0.1064	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL2	5.0536	0.2367	-0.0586	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL3	5.4745	0.6029	0.0697	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL4	3.6114	0.4554	0.1066	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL5	3.3182	0.4524	0.1331	0.0000	0.0000	0.0000	0.0000	0.0000
6	LL6	-0.6867	-0.0139	0.0662	0.0000	0.0000	0.0000	0.0000	0.0000
6	Eq4	15.6987	-2.9285	0.5472	0.2380	0.4535	0.7002	0.1185	-1.4040
6	FLL1	0.5587	0.0856	0.0311	0.0000	0.0000	0.0000	0.0000	0.0000
6	FLL2	0.9846	0.0310	-0.0338	0.0000	0.0000	0.0000	0.0000	0.0000
6	FLL3	0.0191	0.0061	-0.0039	0.0000	0.0000	0.0000	0.0000	0.0000
6	FLL4	-0.1939	-0.0031	0.0185	0.0000	0.0000	0.0000	0.0000	0.0000
6	FLL5	-0.1272	-0.0026	0.0123	0.0000	0.0000	0.0000	0.0000	0.0000
6	FLL6	1.3025	0.0658	-0.0169	0.0000	0.0000	0.0000	0.0000	0.0000
6	FLL7	0.5040	0.0205	-0.0263	0.0000	0.0000	0.0000	0.0000	0.0000
6	FLL8	-0.1572	0.0004	0.0139	0.0000	0.0000	0.0000	0.0000	0.0000
6	FLL9	-0.2028	-0.0040	0.0196	0.0000	0.0000	0.0000	0.0000	0.0000
7	Selfweight	2.0539	0.4722	-0.1824	0.0000	0.0000	0.0000	0.0000	0.0000
7	SuperDC	10.5979	1.9998	-0.8557	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL1	6.5203	0.2305	0.1483	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL2	5.2462	0.4238	-0.0612	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL3	6.0340	0.5383	-0.2588	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL4	3.9800	0.5038	-0.2450	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL5	3.5448	0.4749	-0.2097	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL6	-0.9443	0.0054	0.0333	0.0000	0.0000	0.0000	0.0000	0.0000
7	Eq4	9.9441	3.4438	0.1851	-0.0024	0.3355	-0.5022	-0.0394	-1.2396
7	FLL1	0.4818	0.0200	0.0176	0.0000	0.0000	0.0000	0.0000	0.0000
7	FLL2	1.1020	0.0680	-0.0233	0.0000	0.0000	0.0000	0.0000	0.0000
7	FLL3	0.1564	0.0665	-0.0633	0.0000	0.0000	0.0000	0.0000	0.0000
7	FLL4	-0.2325	0.0226	-0.0077	0.0000	0.0000	0.0000	0.0000	0.0000
7	FLL5	-0.1749	0.0010	0.0062	0.0000	0.0000	0.0000	0.0000	0.0000
7	FLL6	1.2955	0.0517	0.0218	0.0000	0.0000	0.0000	0.0000	0.0000
7	FLL7	0.7230	0.0917	-0.0773	0.0000	0.0000	0.0000	0.0000	0.0000
7	FLL8	-0.1250	0.0510	-0.0364	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
7	FLL9	-0.2608	0.0138	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
8	Selfweight	0.2270	-2.0444	1.2377	0.0000	0.0000	0.0000	0.0000	0.0000
8	SuperDC	-1.3006	-13.3641	7.7322	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL1	2.9048	-2.1672	1.7573	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL2	2.2988	-2.8234	1.6460	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL3	3.2996	-3.5487	1.6990	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL4	1.5580	-3.2078	1.5794	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL5	0.8859	-3.1416	1.7002	0.0000	0.0000	0.0000	0.0000	0.0000
8	LL6	-1.4944	-0.1606	0.3346	0.0000	0.0000	0.0000	0.0000	0.0000
8	Eq4	-7.3401	-16.8099	10.2313	0.0497	3.3628	-1.2929	-1.2627	1.0839
8	FLL1	-0.0785	-0.2962	0.2969	0.0000	0.0000	0.0000	0.0000	0.0000
8	FLL2	0.8324	-0.3954	0.1468	0.0000	0.0000	0.0000	0.0000	0.0000
8	FLL3	0.2952	-0.2662	-0.0170	0.0000	0.0000	0.0000	0.0000	0.0000
8	FLL4	-0.3645	-0.1332	0.0983	0.0000	0.0000	0.0000	0.0000	0.0000
8	FLL5	-0.2767	-0.0297	0.0620	0.0000	0.0000	0.0000	0.0000	0.0000
8	FLL6	0.5861	-0.4611	0.3523	0.0000	0.0000	0.0000	0.0000	0.0000
8	FLL7	0.8325	-0.3966	-0.0054	0.0000	0.0000	0.0000	0.0000	0.0000
8	FLL8	-0.1730	-0.2409	0.0762	0.0000	0.0000	0.0000	0.0000	0.0000
8	FLL9	-0.4126	-0.0985	0.1024	0.0000	0.0000	0.0000	0.0000	0.0000
9	Selfweight	-0.3133	-2.0434	-0.7430	0.0000	0.0000	0.0000	0.0000	0.0000
9	SuperDC	-2.5286	-13.3568	-5.1537	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL1	0.1587	-2.1973	-0.4369	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL2	-0.1633	-3.0349	-1.2254	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL3	-0.0875	-4.0322	-1.8261	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL4	-0.3467	-3.4957	-1.6145	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL5	-0.4221	-3.3053	-1.3655	0.0000	0.0000	0.0000	0.0000	0.0000
9	LL6	-0.2471	0.0711	0.2642	0.0000	0.0000	0.0000	0.0000	0.0000
9	Eq4	-3.2010	-14.5967	-6.8561	0.8915	4.7112	0.0363	0.9727	0.4998
9	FLL1	-0.0440	-0.2300	0.0067	0.0000	0.0000	0.0000	0.0000	0.0000
9	FLL2	0.0583	-0.5119	-0.2535	0.0000	0.0000	0.0000	0.0000	0.0000
9	FLL3	-0.0243	-0.3760	-0.2869	0.0000	0.0000	0.0000	0.0000	0.0000
9	FLL4	-0.0893	-0.0920	-0.0298	0.0000	0.0000	0.0000	0.0000	0.0000
9	FLL5	-0.0458	0.0132	0.0489	0.0000	0.0000	0.0000	0.0000	0.0000
9	FLL6	0.0271	-0.4750	-0.1128	0.0000	0.0000	0.0000	0.0000	0.0000
9	FLL7	0.0389	-0.5865	-0.4050	0.0000	0.0000	0.0000	0.0000	0.0000
9	FLL8	-0.0903	-0.2567	-0.1673	0.0000	0.0000	0.0000	0.0000	0.0000
9	FLL9	-0.0843	-0.0434	0.0192	0.0000	0.0000	0.0000	0.0000	0.0000
10	Selfweight	-0.3232	-1.6178	1.9934	0.0000	0.0000	0.0000	0.0000	0.0000
10	SuperDC	-1.4037	-11.2375	12.0033	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL1	-0.4375	-1.1121	1.9728	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL2	0.0116	-2.3325	2.6628	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL3	0.3845	-3.1387	3.5576	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL4	0.2175	-2.8951	3.0436	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL5	-0.1217	-2.7991	3.0001	0.0000	0.0000	0.0000	0.0000	0.0000
10	LL6	-0.5336	-0.0758	0.0876	0.0000	0.0000	0.0000	0.0000	0.0000
10	Eq4	4.9715	3.1714	2.2871	0.7849	4.4330	-0.7190	0.4324	-0.0089
10	FLL1	-0.1395	-0.0590	0.1804	0.0000	0.0000	0.0000	0.0000	0.0000
10	FLL2	0.1073	-0.4189	0.4778	0.0000	0.0000	0.0000	0.0000	0.0000
10	FLL3	0.1773	-0.4334	0.3377	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
10	FLL4	-0.0621	-0.1198	0.0797	0.0000	0.0000	0.0000	0.0000	0.0000
10	FLL5	-0.0988	-0.0140	0.0162	0.0000	0.0000	0.0000	0.0000	0.0000
10	FLL6	-0.0733	-0.2593	0.4250	0.0000	0.0000	0.0000	0.0000	0.0000
10	FLL7	0.2600	-0.6078	0.5468	0.0000	0.0000	0.0000	0.0000	0.0000
10	FLL8	0.0417	-0.3010	0.2166	0.0000	0.0000	0.0000	0.0000	0.0000
10	FLL9	-0.1079	-0.0781	0.0581	0.0000	0.0000	0.0000	0.0000	0.0000
11	Selfweight	-0.4033	-3.9666	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000
11	SuperDC	-2.4215	-25.9256	-0.2403	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL1	-0.3855	-2.5524	0.4092	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL2	-0.0598	-5.4396	0.2948	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL3	0.1012	-6.3406	0.6828	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL4	-0.0051	-6.3783	0.2825	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL5	-0.3712	-6.2400	0.1624	0.0000	0.0000	0.0000	0.0000	0.0000
11	LL6	-0.5328	-0.4550	-0.2607	0.0000	0.0000	0.0000	0.0000	0.0000
11	Eq4	3.4360	8.6145	-3.2011	1.5196	6.3970	0.2253	-0.4432	3.6613
11	FLL1	-0.1292	-0.2276	-0.0375	0.0000	0.0000	0.0000	0.0000	0.0000
11	FLL2	0.0736	-0.7696	0.1689	0.0000	0.0000	0.0000	0.0000	0.0000
11	FLL3	0.1267	-0.8638	0.0754	0.0000	0.0000	0.0000	0.0000	0.0000
11	FLL4	-0.0601	-0.4007	-0.0817	0.0000	0.0000	0.0000	0.0000	0.0000
11	FLL5	-0.0987	-0.0843	-0.0483	0.0000	0.0000	0.0000	0.0000	0.0000
11	FLL6	-0.0696	-0.5768	0.0872	0.0000	0.0000	0.0000	0.0000	0.0000
11	FLL7	0.1862	-1.0911	0.1981	0.0000	0.0000	0.0000	0.0000	0.0000
11	FLL8	0.0218	-0.7591	-0.0426	0.0000	0.0000	0.0000	0.0000	0.0000
11	FLL9	-0.1045	-0.2852	-0.0790	0.0000	0.0000	0.0000	0.0000	0.0000
12	Selfweight	-0.1243	-1.5963	-0.7843	0.0000	0.0000	0.0000	0.0000	0.0000
12	SuperDC	-1.0582	-10.7356	-4.7939	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL1	-1.0393	-0.8522	-0.1724	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL2	2.0427	-2.1143	-1.0153	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL3	1.5192	-1.9563	-0.1687	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL4	2.0296	-2.3476	-0.9020	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL5	0.5149	-2.4182	-0.9232	0.0000	0.0000	0.0000	0.0000	0.0000
12	LL6	-1.9356	-0.5082	-0.4031	0.0000	0.0000	0.0000	0.0000	0.0000
12	Eq4	16.0361	9.8334	8.1575	0.3179	3.2655	1.2087	1.0923	0.7116
12	FLL1	-0.4657	-0.1103	-0.0928	0.0000	0.0000	0.0000	0.0000	0.0000
12	FLL2	0.3835	-0.1966	0.0712	0.0000	0.0000	0.0000	0.0000	0.0000
12	FLL3	0.8085	-0.2883	-0.0669	0.0000	0.0000	0.0000	0.0000	0.0000
12	FLL4	0.0656	-0.2482	-0.2280	0.0000	0.0000	0.0000	0.0000	0.0000
12	FLL5	-0.3584	-0.0941	-0.0746	0.0000	0.0000	0.0000	0.0000	0.0000
12	FLL6	-0.1751	-0.1878	-0.0305	0.0000	0.0000	0.0000	0.0000	0.0000
12	FLL7	0.9257	-0.2862	0.0806	0.0000	0.0000	0.0000	0.0000	0.0000
12	FLL8	0.5474	-0.3530	-0.2503	0.0000	0.0000	0.0000	0.0000	0.0000
12	FLL9	-0.2409	-0.2101	-0.1828	0.0000	0.0000	0.0000	0.0000	0.0000
13	Selfweight	1.4819	0.9735	-0.0472	0.0000	0.0000	0.0000	0.0000	0.0000
13	SuperDC	10.2580	5.2413	-0.9029	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL1	-1.1182	0.2654	0.1206	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL2	4.7775	0.8780	-0.2190	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL3	1.1083	0.7344	0.2322	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL4	4.1676	0.9770	-0.0997	0.0000	0.0000	0.0000	0.0000	0.0000
13	LL5	2.4904	1.0804	-0.1151	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
13	LL6	-0.8657	0.4066	-0.1393	0.0000	0.0000	0.0000	0.0000	0.0000
13	Eq4	2.5159	0.7980	-2.4732	0.0452	0.0530	0.0368	-0.0116	-1.9091
13	FLL1	-0.3078	0.0190	0.0096	0.0000	0.0000	0.0000	0.0000	0.0000
13	FLL2	0.0882	0.0833	0.0448	0.0000	0.0000	0.0000	0.0000	0.0000
13	FLL3	1.0210	0.1375	-0.0236	0.0000	0.0000	0.0000	0.0000	0.0000
13	FLL4	0.7798	0.1342	-0.0807	0.0000	0.0000	0.0000	0.0000	0.0000
13	FLL5	-0.1603	0.0753	-0.0258	0.0000	0.0000	0.0000	0.0000	0.0000
13	FLL6	-0.2126	0.0597	0.0286	0.0000	0.0000	0.0000	0.0000	0.0000
13	FLL7	0.6389	0.1362	0.0375	0.0000	0.0000	0.0000	0.0000	0.0000
13	FLL8	1.3419	0.1709	-0.0897	0.0000	0.0000	0.0000	0.0000	0.0000
13	FLL9	0.3191	0.1365	-0.0651	0.0000	0.0000	0.0000	0.0000	0.0000
14	Selfweight	-0.6444	-2.4890	1.2515	0.0000	0.0000	0.0000	0.0000	0.0000
14	SuperDC	-2.6044	-16.4948	8.2855	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL1	-2.0272	-0.4910	0.4006	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL2	2.1015	-2.5889	1.6612	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL3	-1.8969	-1.7012	1.2971	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL4	1.2948	-2.7173	1.6278	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL5	-1.2242	-3.3493	2.1578	0.0000	0.0000	0.0000	0.0000	0.0000
14	LL6	-0.4915	-1.4082	0.0723	0.0000	0.0000	0.0000	0.0000	0.0000
14	Eq4	-13.5470	-15.1535	10.2186	0.4371	3.7479	-1.1119	-1.3687	1.6818
14	FLL1	-0.2885	-0.0047	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000
14	FLL2	-0.3426	-0.1920	0.1612	0.0000	0.0000	0.0000	0.0000	0.0000
14	FLL3	0.4850	-0.4241	0.2865	0.0000	0.0000	0.0000	0.0000	0.0000
14	FLL4	0.7464	-0.4453	0.1223	0.0000	0.0000	0.0000	0.0000	0.0000
14	FLL5	-0.0910	-0.2608	0.0134	0.0000	0.0000	0.0000	0.0000	0.0000
14	FLL6	-0.4284	-0.1119	0.0917	0.0000	0.0000	0.0000	0.0000	0.0000
14	FLL7	-0.0412	-0.3669	0.2815	0.0000	0.0000	0.0000	0.0000	0.0000
14	FLL8	0.9788	-0.5667	0.2902	0.0000	0.0000	0.0000	0.0000	0.0000
14	FLL9	0.5073	-0.4309	-0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
15	Selfweight	-0.4859	-1.8700	-1.3520	0.0000	0.0000	0.0000	0.0000	0.0000
15	SuperDC	-3.2325	-12.4451	-8.6628	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL1	-0.4809	-0.1729	0.1115	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL2	0.3024	-2.0754	-0.5949	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL3	-0.5220	-1.0297	-0.0745	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL4	0.0210	-2.1495	-0.8568	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL5	-0.5642	-2.2196	-0.9423	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL6	-0.7000	-1.2748	-1.8930	0.0000	0.0000	0.0000	0.0000	0.0000
15	Eq4	-5.9613	-16.6220	-5.3819	0.8778	4.2063	0.4761	1.4937	0.7346
15	FLL1	-0.0603	0.0274	0.0299	0.0000	0.0000	0.0000	0.0000	0.0000
15	FLL2	-0.0915	-0.1088	-0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
15	FLL3	0.0812	-0.3501	-0.1049	0.0000	0.0000	0.0000	0.0000	0.0000
15	FLL4	0.0594	-0.4539	-0.3896	0.0000	0.0000	0.0000	0.0000	0.0000
15	FLL5	-0.1296	-0.2361	-0.3506	0.0000	0.0000	0.0000	0.0000	0.0000
15	FLL6	-0.1020	-0.0416	0.0224	0.0000	0.0000	0.0000	0.0000	0.0000
15	FLL7	-0.0361	-0.2615	-0.0551	0.0000	0.0000	0.0000	0.0000	0.0000
15	FLL8	0.1532	-0.5238	-0.2692	0.0000	0.0000	0.0000	0.0000	0.0000
15	FLL9	-0.0395	-0.4761	-0.5742	0.0000	0.0000	0.0000	0.0000	0.0000
16	Selfweight	-0.5363	-1.9960	1.4143	0.0000	0.0000	0.0000	0.0000	0.0000
16	SuperDC	-2.7770	-13.6007	8.5729	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
16	LL1	-0.2631	0.1176	-0.2425	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL2	-0.9799	-0.9418	1.3159	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL3	-0.7644	-0.2531	0.1896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL4	-0.7971	-1.2183	1.3114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL5	-1.3493	-2.2229	1.4288	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL6	0.7425	-2.3993	1.1113	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	Eq4	5.5001	12.3753	-2.3659	0.8617	4.3107	-0.4197	-1.5880	0.8329	0.0000
16	FLL1	-0.0221	0.0174	-0.0493	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	FLL2	-0.0790	0.0003	-0.0111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	FLL3	-0.1571	-0.1599	0.2367	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	FLL4	0.0582	-0.4431	0.3927	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	FLL5	0.1375	-0.4443	0.2058	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	FLL6	-0.0591	0.0214	-0.0485	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	FLL7	-0.1389	-0.0779	0.1057	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	FLL8	-0.1207	-0.3550	0.4257	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	FLL9	0.2075	-0.6108	0.4381	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	Selfweight	-0.7978	-2.4143	-1.3940	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	SuperDC	-3.4355	-16.2206	-8.5912	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL1	-1.5169	-0.1995	-0.3346	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL2	-2.0390	-1.3636	-0.5077	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL3	-3.0470	-0.8686	-0.7093	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL4	-1.6680	-1.6689	-0.6874	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL5	-3.6786	-3.0512	-1.9366	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	LL6	3.6292	-2.3055	-1.1728	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	Eq4	13.5555	9.8942	6.5779	0.3215	3.8078	1.3510	1.5841	1.7966	0.0000
17	FLL1	-0.1644	-0.0135	-0.0411	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	FLL2	-0.3777	-0.0800	-0.0829	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	FLL3	-0.2935	-0.2181	-0.0681	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	FLL4	0.6192	-0.4060	-0.0659	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	FLL5	0.6721	-0.4269	-0.2172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	FLL6	-0.3335	-0.0479	-0.0744	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	FLL7	-0.4540	-0.1727	-0.1019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	FLL8	0.0811	-0.3706	-0.0665	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	FLL9	1.0478	-0.5222	-0.0796	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	Selfweight	1.1620	0.6510	0.3751	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	SuperDC	8.1202	3.3868	2.6337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL1	-0.9745	0.0250	-0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL2	-1.6151	0.3572	0.2542	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL3	-2.0577	0.1890	0.0821	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL4	-1.0704	0.4137	0.3534	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL5	-0.7070	0.6225	0.2834	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL6	5.5022	0.4799	0.3094	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	Eq4	2.4264	-2.7873	-0.0592	0.3209	0.1950	0.5679	0.0513	-1.0372	0.0000
18	FLL1	-0.0893	0.0002	-0.0062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	FLL2	-0.2583	0.0151	0.0059	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	FLL3	-0.2505	0.0588	0.0425	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	FLL4	0.5488	0.1014	0.1381	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	FLL5	1.0189	0.0889	0.0573	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	FLL6	-0.2141	0.0067	-0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
18	FLL7	-0.3351	0.0411	0.0261	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	FLL8	0.0504	0.0995	0.0995	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	FLL9	0.9767	0.1314	0.1643	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	Selfweight	1.1620	0.6510	-0.3751	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	SuperDC	8.1147	3.3858	-2.6310	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL1	-0.7820	-0.0239	-0.0552	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL2	-1.7915	0.0145	-0.0907	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL3	-1.8343	-0.0405	-0.1162	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL4	-1.4481	0.0315	-0.0460	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL5	0.1640	0.6911	-0.7905	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	LL6	5.5022	0.4799	-0.3094	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	Eq4	-0.0123	3.8295	-0.8712	0.3209	0.1950	-0.5679	-0.0513	-1.0372	0.0000
19	FLL1	-0.0585	-0.0069	-0.0048	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	FLL2	-0.2259	-0.0025	-0.0148	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	FLL3	-0.2853	0.0038	-0.0145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	FLL4	0.2508	0.0361	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	FLL5	1.0189	0.0889	-0.0573	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	FLL6	-0.1728	-0.0054	-0.0121	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	FLL7	-0.3261	0.0002	-0.0193	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	FLL8	-0.1204	0.0194	0.0068	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	FLL9	0.6666	0.0705	0.0183	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	Selfweight	-0.7978	-2.4143	1.3940	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	SuperDC	-3.4549	-16.2198	8.5972	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL1	-0.5356	0.0912	-0.0704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL2	-2.2552	-0.3688	0.3838	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL3	-1.6021	0.0327	0.0160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL4	-2.1974	-0.4633	0.4923	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL5	-1.1049	-3.2223	1.4074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL6	3.6292	-2.3055	1.1728	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	Eq4	-14.7129	-14.8908	9.2347	0.3215	3.8078	-1.3510	-1.5841	1.7966	0.0000
20	FLL1	-0.0030	0.0323	-0.0258	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	FLL2	-0.1982	-0.0005	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	FLL3	-0.3720	-0.0678	0.0684	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	FLL4	-0.2312	-0.2304	0.2252	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	FLL5	0.6721	-0.4269	0.2172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	FLL6	-0.1195	0.0199	-0.0150	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	FLL7	-0.3476	-0.0350	0.0371	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	FLL8	-0.4194	-0.1659	0.1637	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	FLL9	0.0933	-0.3791	0.2865	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	Selfweight	-0.5363	-1.9960	-1.4143	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	SuperDC	-2.7770	-13.5841	-8.5679	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL1	-0.0969	0.1333	0.0684	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL2	-0.5091	-0.1123	0.1316	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL3	-0.3138	0.1979	0.1611	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL4	-0.4987	-0.1766	0.1186	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL5	-0.7087	-2.6650	-2.0209	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL6	0.7425	-2.3993	-1.1113	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	Eq4	-6.3711	-16.5453	-4.9898	0.8617	4.3107	0.4197	1.5880	0.8329	0.0000
21	FLL1	0.0063	0.0337	0.0091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
21	FLL2	-0.0418	0.0163	0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	FLL3	-0.0856	-0.0261	0.0196	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	FLL4	-0.0751	-0.1738	-0.0218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	FLL5	0.1375	-0.4443	-0.2058	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	FLL6	-0.0215	0.0297	0.0153	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	FLL7	-0.0771	-0.0006	0.0235	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	FLL8	-0.1065	-0.1041	0.0061	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	FLL9	-0.0052	-0.3389	-0.1062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	Selfweight	-0.4859	-1.8700	1.3520	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	SuperDC	-3.2589	-12.4906	8.6756	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL1	0.0072	0.0619	-0.1249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL2	-0.2136	0.1953	-0.3179	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL3	-0.0803	0.1212	-0.2932	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL4	-0.2800	0.1131	-0.2619	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL5	-0.4340	-3.0183	1.8590	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL6	-0.7000	-1.2748	1.8930	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	Eq4	4.9426	12.7763	-2.7259	0.8778	4.2063	-0.4761	-1.4937	0.7346	0.0000
22	FLL1	0.0026	-0.0107	-0.0050	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	FLL2	-0.0044	0.0271	-0.0391	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	FLL3	-0.0353	0.0354	-0.0517	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	FLL4	-0.0969	-0.0191	0.0255	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	FLL5	-0.1296	-0.2361	0.3506	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	FLL6	0.0008	0.0125	-0.0274	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	FLL7	-0.0209	0.0407	-0.0578	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	FLL8	-0.0761	0.0192	-0.0303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	FLL9	-0.1380	-0.1169	0.1714	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	Selfweight	-0.6444	-2.4890	-1.2515	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	SuperDC	-2.6816	-16.5517	-8.3260	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL1	-0.1579	0.0406	-0.0443	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL2	-1.4339	-0.1063	-0.3067	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL3	-0.8070	-0.0180	-0.2095	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL4	-1.6534	-0.2241	-0.3798	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL5	0.6025	-3.8157	-2.0299	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	LL6	-0.4915	-1.4082	-0.0723	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	Eq4	12.6306	10.0437	7.6438	0.4371	3.7479	1.1119	1.3687	1.6818	0.0000
23	FLL1	0.0026	-0.0045	-0.0077	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	FLL2	-0.0784	0.0110	-0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	FLL3	-0.2354	-0.0155	-0.0482	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	FLL4	-0.3967	-0.1095	-0.0847	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	FLL5	-0.0910	-0.2608	-0.0134	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	FLL6	-0.0383	0.0074	-0.0111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	FLL7	-0.1802	0.0021	-0.0358	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	FLL8	-0.3864	-0.0663	-0.0812	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	FLL9	-0.3781	-0.2051	-0.0782	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	Selfweight	1.4819	0.9735	0.0472	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	SuperDC	10.2696	5.2592	0.9006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL1	-0.0499	-0.0237	-0.0058	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL2	-0.8459	-0.0202	-0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL3	-0.3793	-0.0432	-0.0084	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
24	LL4	-0.9586	-0.0055	-0.0053	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL5	4.0098	1.2121	0.1997	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	LL6	-0.8657	0.4066	0.1393	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	Eq4	0.5638	0.8313	-2.1982	0.0452	0.0530	-0.0368	0.0116	-1.9091	0.0000
24	FLL1	0.0177	-0.0028	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	FLL2	-0.0428	-0.0055	-0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	FLL3	-0.1428	-0.0028	-0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	FLL4	-0.2661	0.0192	0.0037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	FLL5	-0.1603	0.0753	0.0258	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	FLL6	-0.0123	-0.0052	-0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	FLL7	-0.1062	-0.0059	-0.0044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	FLL8	-0.2459	0.0069	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	FLL9	-0.2957	0.0486	0.0141	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	Selfweight	-0.1243	-1.5963	0.7843	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	SuperDC	-0.9743	-10.7611	4.7667	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL1	0.0755	0.0559	-0.0471	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL2	-0.5070	0.0742	-0.0803	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL3	-0.0132	0.1483	-0.1301	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL4	-0.5690	0.1036	-0.1063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL5	2.0076	-2.3947	0.7902	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL6	-1.9356	-0.5082	0.4031	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	Eq4	-16.5125	-13.1979	9.6744	0.3179	3.2655	-1.2087	-1.0923	0.7116	0.0000
25	FLL1	0.0429	0.0176	-0.0139	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	FLL2	-0.0136	0.0079	-0.0075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	FLL3	-0.0934	0.0078	-0.0097	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	FLL4	-0.2499	-0.0151	0.0066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	FLL5	-0.3584	-0.0941	0.0746	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	FLL6	0.0170	0.0133	-0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	FLL7	-0.0590	0.0095	-0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	FLL8	-0.1958	0.0001	-0.0056	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	FLL9	-0.3669	-0.0533	0.0378	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	Selfweight	-0.4033	-3.9666	-0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	SuperDC	-2.4105	-26.0503	0.1673	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL1	0.0251	0.0711	-0.0077	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL2	-0.1072	0.1939	0.0215	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL3	0.0150	0.2222	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL4	-0.1211	0.2456	0.0422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL5	-0.0319	-6.3171	-0.3890	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	LL6	-0.5328	-0.4550	0.2607	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	Eq4	-4.2273	-16.7489	-3.0995	1.5196	6.3970	-0.2253	0.4432	3.6613	0.0000
26	FLL1	0.0117	0.0188	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	FLL2	-0.0017	0.0142	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	FLL3	-0.0204	0.0271	0.0033	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	FLL4	-0.0611	0.0175	0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	FLL5	-0.0987	-0.0843	0.0483	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	FLL6	0.0057	0.0170	-0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	FLL7	-0.0119	0.0241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	FLL8	-0.0458	0.0319	0.0128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	FLL9	-0.0944	-0.0213	0.0383	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
27	Selfweight	-0.3232	-1.6178	-1.9934	0.0000	0.0000	0.0000	0.0000	0.0000
27	SuperDC	-1.4053	-11.3018	-12.1383	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL1	0.0297	0.0237	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL2	-0.0897	0.0808	0.0451	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL3	0.0336	0.0839	0.0336	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL4	-0.0956	0.1074	0.0473	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL5	0.1971	-2.9174	-3.0004	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL6	-0.5336	-0.0758	-0.0876	0.0000	0.0000	0.0000	0.0000	0.0000
27	Eq4	-5.4438	-6.6839	-1.5033	0.7849	4.4330	0.7190	-0.4324	-0.0089
27	FLL1	0.0135	0.0071	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
27	FLL2	-0.0010	0.0047	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000
27	FLL3	-0.0180	0.0114	0.0073	0.0000	0.0000	0.0000	0.0000	0.0000
27	FLL4	-0.0568	0.0142	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000
27	FLL5	-0.0988	-0.0140	-0.0162	0.0000	0.0000	0.0000	0.0000	0.0000
27	FLL6	0.0069	0.0058	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000
27	FLL7	-0.0102	0.0091	0.0065	0.0000	0.0000	0.0000	0.0000	0.0000
27	FLL8	-0.0416	0.0167	0.0090	0.0000	0.0000	0.0000	0.0000	0.0000
27	FLL9	-0.0909	0.0060	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
28	Selfweight	-0.3133	-2.0434	0.7430	0.0000	0.0000	0.0000	0.0000	0.0000
28	SuperDC	-2.4717	-13.4957	5.1840	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL1	0.0109	-0.0142	0.0141	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL2	0.0033	0.0886	-0.0909	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL3	0.0134	-0.0260	0.0073	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL4	-0.0118	0.0569	-0.0884	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL5	-0.2426	-3.2578	1.5224	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL6	-0.2471	0.0711	-0.2642	0.0000	0.0000	0.0000	0.0000	0.0000
28	Eq4	2.3848	10.3465	-5.2409	0.8915	4.7112	-0.0363	-0.9727	0.4998
28	FLL1	0.0000	-0.0163	0.0106	0.0000	0.0000	0.0000	0.0000	0.0000
28	FLL2	0.0031	0.0067	-0.0038	0.0000	0.0000	0.0000	0.0000	0.0000
28	FLL3	0.0007	0.0187	-0.0175	0.0000	0.0000	0.0000	0.0000	0.0000
28	FLL4	-0.0136	0.0302	-0.0407	0.0000	0.0000	0.0000	0.0000	0.0000
28	FLL5	-0.0458	0.0132	-0.0489	0.0000	0.0000	0.0000	0.0000	0.0000
28	FLL6	0.0023	-0.0040	0.0034	0.0000	0.0000	0.0000	0.0000	0.0000
28	FLL7	0.0029	0.0156	-0.0123	0.0000	0.0000	0.0000	0.0000	0.0000
28	FLL8	-0.0061	0.0291	-0.0336	0.0000	0.0000	0.0000	0.0000	0.0000
28	FLL9	-0.0312	0.0316	-0.0558	0.0000	0.0000	0.0000	0.0000	0.0000
29	Selfweight	0.2270	-2.0444	-1.2377	0.0000	0.0000	0.0000	0.0000	0.0000
29	SuperDC	-0.8306	-13.4738	-7.8222	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL1	0.0596	-0.0085	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL2	-0.1071	0.0585	-0.0136	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL3	0.0389	-0.0339	-0.0261	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL4	-0.1938	0.0079	-0.0577	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL5	2.0286	-2.8928	-1.3365	0.0000	0.0000	0.0000	0.0000	0.0000
29	LL6	-1.4944	-0.1606	-0.3346	0.0000	0.0000	0.0000	0.0000	0.0000
29	Eq4	6.8256	12.5284	7.7170	0.0497	3.3628	1.2929	1.2627	1.0839
29	FLL1	0.0073	-0.0164	-0.0072	0.0000	0.0000	0.0000	0.0000	0.0000
29	FLL2	0.0100	0.0076	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000
29	FLL3	-0.0187	0.0140	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
29	FLL4	-0.1158	0.0092	-0.0212	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
29	FLL5	-0.2767	-0.0297	-0.0620	0.0000	0.0000	0.0000	0.0000	0.0000
29	FLL6	0.0124	-0.0029	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
29	FLL7	-0.0010	0.0141	0.0038	0.0000	0.0000	0.0000	0.0000	0.0000
29	FLL8	-0.0713	0.0150	-0.0109	0.0000	0.0000	0.0000	0.0000	0.0000
29	FLL9	-0.2173	-0.0047	-0.0445	0.0000	0.0000	0.0000	0.0000	0.0000
30	Selfweight	2.0539	0.4722	0.1824	0.0000	0.0000	0.0000	0.0000	0.0000
30	SuperDC	11.3076	2.0149	0.8302	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL1	0.0595	0.0031	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL2	-0.0608	-0.0155	-0.0150	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL3	0.0976	0.0083	-0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL4	-0.0709	-0.0060	-0.0189	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL5	4.1355	0.4990	0.1912	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL6	-0.9443	0.0054	-0.0333	0.0000	0.0000	0.0000	0.0000	0.0000
30	Eq4	-6.5725	-2.8112	0.4528	-0.0024	0.3355	0.5022	0.0394	-1.2396
30	FLL1	0.0196	0.0038	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
30	FLL2	0.0047	-0.0015	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
30	FLL3	-0.0146	-0.0035	-0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
30	FLL4	-0.0750	-0.0045	-0.0057	0.0000	0.0000	0.0000	0.0000	0.0000
30	FLL5	-0.1749	0.0010	-0.0062	0.0000	0.0000	0.0000	0.0000	0.0000
30	FLL6	0.0136	0.0009	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
30	FLL7	-0.0042	-0.0032	-0.0016	0.0000	0.0000	0.0000	0.0000	0.0000
30	FLL8	-0.0474	-0.0049	-0.0048	0.0000	0.0000	0.0000	0.0000	0.0000
30	FLL9	-0.1390	-0.0034	-0.0075	0.0000	0.0000	0.0000	0.0000	0.0000
31	Selfweight	2.0733	0.4186	-0.2013	0.0000	0.0000	0.0000	0.0000	0.0000
31	SuperDC	11.1204	1.8313	-0.8038	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL1	0.0592	-0.0050	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL2	-0.0216	-0.0024	-0.0028	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL3	0.1273	-0.0181	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL4	0.0013	-0.0146	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL5	3.7491	0.1663	0.0381	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL6	-0.6867	-0.0139	-0.0662	0.0000	0.0000	0.0000	0.0000	0.0000
31	Eq4	-12.3524	3.5480	0.2608	0.2380	0.4535	-0.7002	-0.1185	-1.4040
31	FLL1	0.0235	-0.0038	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
31	FLL2	0.0035	0.0005	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
31	FLL3	-0.0094	0.0006	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
31	FLL4	-0.0511	-0.0005	-0.0046	0.0000	0.0000	0.0000	0.0000	0.0000
31	FLL5	-0.1272	-0.0026	-0.0123	0.0000	0.0000	0.0000	0.0000	0.0000
31	FLL6	0.0141	-0.0014	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
31	FLL7	-0.0029	0.0010	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
31	FLL8	-0.0312	0.0000	-0.0026	0.0000	0.0000	0.0000	0.0000	0.0000
31	FLL9	-0.0982	-0.0015	-0.0092	0.0000	0.0000	0.0000	0.0000	0.0000
32	Selfweight	0.6159	-2.0593	1.1946	0.0000	0.0000	0.0000	0.0000	0.0000
32	SuperDC	-0.3593	-14.6693	8.6659	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL1	0.0809	0.0315	-0.0220	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL2	0.0229	0.0366	-0.0276	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL3	0.2284	0.1175	-0.0841	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL4	0.1211	0.1099	-0.0812	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL5	1.2734	-2.0961	1.5505	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL6	-0.4478	0.0832	-0.0754	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
32	Eq4	-32.2160	-21.3835	15.2603	0.5530	4.2691	-1.6069	-1.9333	1.9303
32	FLL1	0.0421	0.0216	-0.0154	0.0000	0.0000	0.0000	0.0000	0.0000
32	FLL2	0.0008	-0.0017	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000
32	FLL3	-0.0071	0.0003	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
32	FLL4	-0.0304	0.0089	-0.0076	0.0000	0.0000	0.0000	0.0000	0.0000
32	FLL5	-0.0829	0.0154	-0.0140	0.0000	0.0000	0.0000	0.0000	0.0000
32	FLL6	0.0204	0.0085	-0.0060	0.0000	0.0000	0.0000	0.0000	0.0000
32	FLL7	-0.0051	-0.0025	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
32	FLL8	-0.0181	0.0059	-0.0050	0.0000	0.0000	0.0000	0.0000	0.0000
32	FLL9	-0.0618	0.0140	-0.0124	0.0000	0.0000	0.0000	0.0000	0.0000
33	Selfweight	-0.1189	-1.8626	-1.0001	0.0000	0.0000	0.0000	0.0000	0.0000
33	SuperDC	-2.2081	-12.8005	-7.1784	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL1	0.0197	0.0228	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL2	0.0092	0.0322	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL3	0.0587	0.0901	0.0277	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL4	0.0365	0.0912	0.0288	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL5	0.0031	-1.9158	-0.6932	0.0000	0.0000	0.0000	0.0000	0.0000
33	LL6	-0.0837	0.1037	0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
33	Eq4	-8.7462	-16.6440	-5.6660	0.8807	4.8100	0.1864	1.7463	1.1143
33	FLL1	0.0107	0.0164	0.0049	0.0000	0.0000	0.0000	0.0000	0.0000
33	FLL2	0.0001	-0.0015	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
33	FLL3	-0.0013	0.0009	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
33	FLL4	-0.0051	0.0102	0.0034	0.0000	0.0000	0.0000	0.0000	0.0000
33	FLL5	-0.0155	0.0192	0.0059	0.0000	0.0000	0.0000	0.0000	0.0000
33	FLL6	0.0050	0.0063	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000
33	FLL7	-0.0012	-0.0018	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
33	FLL8	-0.0029	0.0067	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000
33	FLL9	-0.0111	0.0168	0.0054	0.0000	0.0000	0.0000	0.0000	0.0000
34	Selfweight	-0.2607	-1.3392	1.4838	0.0000	0.0000	0.0000	0.0000	0.0000
34	SuperDC	-1.4433	-11.1434	9.3068	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL1	-0.0067	-0.0236	0.0136	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL2	-0.0025	-0.0077	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL3	-0.0178	-0.0666	0.0296	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL4	-0.0085	-0.0358	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL5	-0.1989	-0.5869	1.0391	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL6	0.0508	0.1337	-0.1552	0.0000	0.0000	0.0000	0.0000	0.0000
34	Eq4	1.8197	6.3075	-1.5222	0.6441	4.1329	-0.9867	-1.3630	-0.7523
34	FLL1	-0.0030	-0.0121	0.0053	0.0000	0.0000	0.0000	0.0000	0.0000
34	FLL2	-0.0003	-0.0004	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
34	FLL3	0.0004	0.0018	-0.0019	0.0000	0.0000	0.0000	0.0000	0.0000
34	FLL4	0.0031	0.0087	-0.0111	0.0000	0.0000	0.0000	0.0000	0.0000
34	FLL5	0.0094	0.0248	-0.0287	0.0000	0.0000	0.0000	0.0000	0.0000
34	FLL6	-0.0017	-0.0059	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000
34	FLL7	0.0001	0.0013	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
34	FLL8	0.0016	0.0050	-0.0066	0.0000	0.0000	0.0000	0.0000	0.0000
34	FLL9	0.0067	0.0182	-0.0218	0.0000	0.0000	0.0000	0.0000	0.0000
35	Selfweight	-0.0501	-3.8221	0.2311	0.0000	0.0000	0.0000	0.0000	0.0000
35	SuperDC	-0.3505	-30.5514	0.2740	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL1	-0.0014	-0.0494	0.0174	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
35	LL2	-0.0008	-0.0094	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL3	-0.0039	-0.1317	0.0495	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL4	-0.0023	-0.0589	0.0281	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL5	-0.0250	-1.9351	0.1699	0.0000	0.0000	0.0000	0.0000	0.0000
35	LL6	0.0081	0.3458	-0.0941	0.0000	0.0000	0.0000	0.0000	0.0000
35	Eq4	0.3468	9.1557	-6.9968	1.2386	6.7091	-0.3903	0.4497	3.6090
35	FLL1	-0.0007	-0.0239	0.0089	0.0000	0.0000	0.0000	0.0000	0.0000
35	FLL2	0.0000	-0.0013	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
35	FLL3	0.0000	0.0046	-0.0011	0.0000	0.0000	0.0000	0.0000	0.0000
35	FLL4	0.0004	0.0235	-0.0058	0.0000	0.0000	0.0000	0.0000	0.0000
35	FLL5	0.0015	0.0640	-0.0174	0.0000	0.0000	0.0000	0.0000	0.0000
35	FLL6	-0.0003	-0.0122	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
35	FLL7	0.0000	0.0024	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
35	FLL8	0.0002	0.0138	-0.0032	0.0000	0.0000	0.0000	0.0000	0.0000
35	FLL9	0.0010	0.0477	-0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
36	Selfweight	-0.3762	-1.2437	-0.6160	0.0000	0.0000	0.0000	0.0000	0.0000
36	SuperDC	-3.4901	-11.4454	-5.6502	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL1	-0.0054	-0.0237	-0.0095	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL2	-0.0021	-0.0082	-0.0036	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL3	-0.0156	-0.0671	-0.0275	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL4	-0.0091	-0.0368	-0.0159	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL5	-0.1284	-0.5619	-0.2189	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL6	0.0261	0.1296	0.0471	0.0000	0.0000	0.0000	0.0000	0.0000
36	Eq4	0.9336	5.6568	1.8909	-0.2603	4.4512	0.6119	1.2537	-1.7661
36	FLL1	-0.0029	-0.0122	-0.0050	0.0000	0.0000	0.0000	0.0000	0.0000
36	FLL2	0.0000	-0.0003	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
36	FLL3	0.0004	0.0018	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
36	FLL4	0.0017	0.0084	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000
36	FLL5	0.0048	0.0240	0.0087	0.0000	0.0000	0.0000	0.0000	0.0000
36	FLL6	-0.0014	-0.0060	-0.0024	0.0000	0.0000	0.0000	0.0000	0.0000
36	FLL7	0.0003	0.0013	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
36	FLL8	0.0010	0.0048	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
36	FLL9	0.0035	0.0176	0.0064	0.0000	0.0000	0.0000	0.0000	0.0000
37	Selfweight	0.3417	-1.1842	0.2790	0.0000	0.0000	0.0000	0.0000	0.0000
37	SuperDC	3.0442	-14.4992	3.0076	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL1	0.3919	-1.6139	0.2321	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL2	0.2400	-1.0311	0.1471	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL3	0.9592	-4.4340	0.8720	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL4	0.6922	-3.2587	0.6554	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL5	0.6802	-3.2181	0.6526	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL6	-0.0335	0.1113	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
37	Eq4	2.7265	-8.3599	0.7607	0.3457	3.8244	0.3121	-1.0261	0.4711
37	FLL1	0.1584	-0.7310	0.1474	0.0000	0.0000	0.0000	0.0000	0.0000
37	FLL2	0.0239	-0.0845	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000
37	FLL3	-0.0110	0.0342	-0.0046	0.0000	0.0000	0.0000	0.0000	0.0000
37	FLL4	-0.0128	0.0420	-0.0038	0.0000	0.0000	0.0000	0.0000	0.0000
37	FLL5	-0.0062	0.0206	-0.0016	0.0000	0.0000	0.0000	0.0000	0.0000
37	FLL6	0.0939	-0.3988	0.0634	0.0000	0.0000	0.0000	0.0000	0.0000
37	FLL7	0.0032	-0.0150	-0.0024	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)		In-Plane Shear Fxy (kips/ft)		Moment Mxx (kips-ft/ft)		Moment Myy (kips-ft/ft)		Torsion Mxy (kips-ft/ft)		Shear Qx (kips/ft)		Shear Qy (kips/ft)	
37	FLL8	-0.0164	0.0528	-0.0055	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
37	FLL9	-0.0116	0.0383	-0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	Selfweight	0.4959	-1.8547	-0.2416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	SuperDC	4.2528	-18.6504	-0.2375	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	LL1	0.5626	-2.4044	-0.4622	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	LL2	0.3595	-1.5736	-0.3457	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	LL3	1.3456	-5.8441	-0.2585	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	LL4	0.9749	-4.2653	-0.1504	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	LL5	0.9569	-4.1983	-0.1290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	LL6	-0.0475	0.1805	0.0521	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	Eq4	3.6011	-12.3456	-1.8788	0.8223	3.8211	0.2140	-0.3585	0.8867								
38	FLL1	0.2182	-0.9458	-0.0188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	FLL2	0.0383	-0.1619	-0.0723	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	FLL3	-0.0120	0.0446	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	FLL4	-0.0172	0.0652	0.0155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	FLL5	-0.0088	0.0334	0.0097	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	FLL6	0.1339	-0.5744	-0.0879	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	FLL7	0.0099	-0.0451	-0.0349	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	FLL8	-0.0206	0.0777	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
38	FLL9	-0.0159	0.0606	0.0158	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	Selfweight	-0.1230	-1.4003	-0.5083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	SuperDC	-0.8222	-13.6167	-1.8899	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	LL1	-0.1034	-1.9544	-0.9051	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	LL2	-0.1799	-1.3353	-0.5618	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	LL3	-0.2150	-4.3429	-0.8983	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	LL4	-0.2115	-3.1680	-0.5540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	LL5	-0.2164	-3.1103	-0.5132	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	LL6	-0.0209	0.1486	0.1120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	Eq4	4.2460	-8.8838	-6.8911	0.3872	3.6329	-0.0907	1.5833	0.5670								
39	FLL1	-0.0138	-0.6843	-0.1308	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	FLL2	-0.0233	-0.1568	-0.1078	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	FLL3	-0.0231	0.0240	0.0284	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	FLL4	-0.0126	0.0501	0.0407	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	FLL5	-0.0039	0.0275	0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	FLL6	-0.0227	-0.4560	-0.1833	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	FLL7	-0.0293	-0.0590	-0.0302	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	FLL8	-0.0221	0.0547	0.0488	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
39	FLL9	-0.0095	0.0480	0.0378	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	Selfweight	0.1676	-1.7191	0.0141	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	SuperDC	-0.6914	-13.3069	2.0261	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	LL1	0.6516	-2.4259	-0.7690	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	LL2	0.4379	-2.1257	-0.4601	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	LL3	0.1236	-4.3389	0.1819	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	LL4	-0.0074	-3.3182	0.2843	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	LL5	-0.0479	-3.2574	0.3266	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	LL6	-0.0984	0.1137	0.1162	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	Eq4	4.9318	7.6736	-7.2669	0.8654	3.5266	0.5987	-1.0041	1.1311								
40	FLL1	-0.0090	-0.5686	0.0498	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
40	FLL2	0.1064	-0.3059	-0.1232	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
40	FLL3	-0.0124	-0.0766	0.0334	0.0000	0.0000	0.0000	0.0000	0.0000
40	FLL4	-0.0319	0.0117	0.0432	0.0000	0.0000	0.0000	0.0000	0.0000
40	FLL5	-0.0182	0.0210	0.0215	0.0000	0.0000	0.0000	0.0000	0.0000
40	FLL6	0.1182	-0.5347	-0.1318	0.0000	0.0000	0.0000	0.0000	0.0000
40	FLL7	0.0435	-0.2129	-0.0319	0.0000	0.0000	0.0000	0.0000	0.0000
40	FLL8	-0.0335	-0.0273	0.0534	0.0000	0.0000	0.0000	0.0000	0.0000
40	FLL9	-0.0311	0.0234	0.0396	0.0000	0.0000	0.0000	0.0000	0.0000
41	Selfweight	0.7040	-1.3428	-0.9774	0.0000	0.0000	0.0000	0.0000	0.0000
41	SuperDC	2.4153	-10.6478	-6.9600	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL1	2.1177	-2.1409	-2.5862	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL2	1.5629	-2.0132	-2.2221	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL3	1.5310	-3.4487	-2.7884	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL4	0.9527	-2.7095	-2.0548	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL5	0.8536	-2.6713	-1.9687	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL6	-0.2375	0.0512	0.1816	0.0000	0.0000	0.0000	0.0000	0.0000
41	Eq4	6.9195	11.9000	6.8164	0.6039	2.6924	0.1776	1.6036	0.8603
41	FLL1	0.1499	-0.4177	-0.2899	0.0000	0.0000	0.0000	0.0000	0.0000
41	FLL2	0.3163	-0.2955	-0.3910	0.0000	0.0000	0.0000	0.0000	0.0000
41	FLL3	-0.0073	-0.0923	-0.0643	0.0000	0.0000	0.0000	0.0000	0.0000
41	FLL4	-0.0713	-0.0110	0.0347	0.0000	0.0000	0.0000	0.0000	0.0000
41	FLL5	-0.0440	0.0095	0.0336	0.0000	0.0000	0.0000	0.0000	0.0000
41	FLL6	0.4119	-0.4611	-0.5236	0.0000	0.0000	0.0000	0.0000	0.0000
41	FLL7	0.1513	-0.2158	-0.2436	0.0000	0.0000	0.0000	0.0000	0.0000
41	FLL8	-0.0649	-0.0545	-0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
41	FLL9	-0.0723	0.0023	0.0455	0.0000	0.0000	0.0000	0.0000	0.0000
42	Selfweight	0.6232	0.1749	-0.5228	0.0000	0.0000	0.0000	0.0000	0.0000
42	SuperDC	2.4642	-2.1480	-4.8075	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL1	3.0064	-0.8445	-1.4300	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL2	2.1963	-0.6889	-1.3392	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL3	1.9816	-0.7931	-1.8874	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL4	1.1718	-0.5944	-1.4189	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL5	1.0106	-0.5913	-1.3418	0.0000	0.0000	0.0000	0.0000	0.0000
42	LL6	-0.3785	0.0154	0.1424	0.0000	0.0000	0.0000	0.0000	0.0000
42	Eq4	12.7035	2.8154	6.2179	-0.1864	1.4218	0.3391	0.2803	-0.1886
42	FLL1	0.1732	-0.1021	-0.1724	0.0000	0.0000	0.0000	0.0000	0.0000
42	FLL2	0.4624	-0.1078	-0.2437	0.0000	0.0000	0.0000	0.0000	0.0000
42	FLL3	-0.0106	-0.0001	-0.0781	0.0000	0.0000	0.0000	0.0000	0.0000
42	FLL4	-0.1125	0.0042	0.0191	0.0000	0.0000	0.0000	0.0000	0.0000
42	FLL5	-0.0701	0.0029	0.0264	0.0000	0.0000	0.0000	0.0000	0.0000
42	FLL6	0.5799	-0.1687	-0.2968	0.0000	0.0000	0.0000	0.0000	0.0000
42	FLL7	0.2251	-0.0447	-0.1933	0.0000	0.0000	0.0000	0.0000	0.0000
42	FLL8	-0.1020	0.0031	-0.0216	0.0000	0.0000	0.0000	0.0000	0.0000
42	FLL9	-0.1144	0.0048	0.0312	0.0000	0.0000	0.0000	0.0000	0.0000
43	Selfweight	0.5278	0.2508	0.5129	0.0000	0.0000	0.0000	0.0000	0.0000
43	SuperDC	2.2116	-1.3154	4.0182	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL1	2.9956	-0.6678	1.2962	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL2	2.1375	-0.4512	0.9801	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL3	2.4209	-0.3299	0.8282	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL4	1.3572	-0.2640	0.7506	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
43	LL5	1.1065	-0.3088	0.8657	0.0000	0.0000	0.0000	0.0000	0.0000
43	LL6	-0.6072	-0.0769	0.2438	0.0000	0.0000	0.0000	0.0000	0.0000
43	Eq4	1.8899	-1.5021	6.1201	-0.3172	1.2550	-0.3024	-0.1038	-0.3245
43	FLL1	0.1793	-0.0924	0.2133	0.0000	0.0000	0.0000	0.0000	0.0000
43	FLL2	0.5106	-0.0416	0.0694	0.0000	0.0000	0.0000	0.0000	0.0000
43	FLL3	0.0261	0.0489	-0.0820	0.0000	0.0000	0.0000	0.0000	0.0000
43	FLL4	-0.1701	-0.0105	0.0513	0.0000	0.0000	0.0000	0.0000	0.0000
43	FLL5	-0.1124	-0.0142	0.0451	0.0000	0.0000	0.0000	0.0000	0.0000
43	FLL6	0.5882	-0.1275	0.2516	0.0000	0.0000	0.0000	0.0000	0.0000
43	FLL7	0.3109	0.0435	-0.0881	0.0000	0.0000	0.0000	0.0000	0.0000
43	FLL8	-0.1329	0.0138	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000
43	FLL9	-0.1795	-0.0166	0.0632	0.0000	0.0000	0.0000	0.0000	0.0000
44	Selfweight	0.5220	-1.3405	1.1310	0.0000	0.0000	0.0000	0.0000	0.0000
44	SuperDC	1.7277	-9.9385	6.7998	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL1	1.8829	-1.6978	2.4798	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL2	1.4297	-2.1145	1.9955	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL3	1.7789	-2.7039	1.9520	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL4	1.0292	-2.3968	1.5800	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL5	0.8159	-2.3524	1.6505	0.0000	0.0000	0.0000	0.0000	0.0000
44	LL6	-0.4745	-0.1063	0.1648	0.0000	0.0000	0.0000	0.0000	0.0000
44	Eq4	1.9672	-12.0713	8.9373	0.1486	2.4172	-0.1822	-1.1364	0.5562
44	FLL1	0.0992	-0.2315	0.3261	0.0000	0.0000	0.0000	0.0000	0.0000
44	FLL2	0.3617	-0.3042	0.2479	0.0000	0.0000	0.0000	0.0000	0.0000
44	FLL3	0.0614	-0.1891	-0.0573	0.0000	0.0000	0.0000	0.0000	0.0000
44	FLL4	-0.1202	-0.0883	0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
44	FLL5	-0.0879	-0.0197	0.0305	0.0000	0.0000	0.0000	0.0000	0.0000
44	FLL6	0.3748	-0.3601	0.4875	0.0000	0.0000	0.0000	0.0000	0.0000
44	FLL7	0.2681	-0.2948	0.0166	0.0000	0.0000	0.0000	0.0000	0.0000
44	FLL8	-0.0734	-0.1647	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000
44	FLL9	-0.1331	-0.0653	0.0447	0.0000	0.0000	0.0000	0.0000	0.0000
45	Selfweight	-0.0228	-2.1494	0.1099	0.0000	0.0000	0.0000	0.0000	0.0000
45	SuperDC	-0.6790	-15.7272	-0.9455	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL1	0.5201	-2.2218	0.8980	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL2	0.4651	-3.3967	0.1603	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL3	0.9231	-4.7134	-0.0576	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL4	0.4200	-4.0957	-0.2877	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL5	0.1590	-3.9009	-0.1449	0.0000	0.0000	0.0000	0.0000	0.0000
45	LL6	-0.5206	0.0481	0.0848	0.0000	0.0000	0.0000	0.0000	0.0000
45	Eq4	1.2368	-12.4516	-5.5949	0.9283	3.5401	-0.2570	0.4596	0.9390
45	FLL1	-0.0529	-0.2065	0.0961	0.0000	0.0000	0.0000	0.0000	0.0000
45	FLL2	0.2230	-0.6081	0.0352	0.0000	0.0000	0.0000	0.0000	0.0000
45	FLL3	0.1161	-0.5006	-0.1564	0.0000	0.0000	0.0000	0.0000	0.0000
45	FLL4	-0.1138	-0.1096	-0.0529	0.0000	0.0000	0.0000	0.0000	0.0000
45	FLL5	-0.0964	0.0089	0.0157	0.0000	0.0000	0.0000	0.0000	0.0000
45	FLL6	0.1114	-0.4922	0.1624	0.0000	0.0000	0.0000	0.0000	0.0000
45	FLL7	0.2706	-0.7635	-0.1303	0.0000	0.0000	0.0000	0.0000	0.0000
45	FLL8	-0.0412	-0.3245	-0.1271	0.0000	0.0000	0.0000	0.0000	0.0000
45	FLL9	-0.1356	-0.0563	-0.0188	0.0000	0.0000	0.0000	0.0000	0.0000
46	Selfweight	-0.3627	-1.8202	0.3339	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
46	SuperDC	-1.6248	-14.8268	1.3677	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL1	-0.2648	-1.5696	0.7391	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL2	-0.1426	-3.1906	0.2909	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL3	0.1577	-4.5542	0.4431	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL4	-0.0384	-4.0251	0.1672	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL5	-0.2266	-3.7863	0.3648	0.0000	0.0000	0.0000	0.0000	0.0000
46	LL6	-0.3402	0.1100	0.1945	0.0000	0.0000	0.0000	0.0000	0.0000
46	Eq4	-0.6344	0.0879	-6.4456	0.8032	3.7391	0.3303	-2.1082	0.8638
46	FLL1	-0.0989	-0.0606	0.0779	0.0000	0.0000	0.0000	0.0000	0.0000
46	FLL2	0.0739	-0.6301	0.0847	0.0000	0.0000	0.0000	0.0000	0.0000
46	FLL3	0.0893	-0.6252	-0.0583	0.0000	0.0000	0.0000	0.0000	0.0000
46	FLL4	-0.0673	-0.1134	-0.0303	0.0000	0.0000	0.0000	0.0000	0.0000
46	FLL5	-0.0630	0.0204	0.0360	0.0000	0.0000	0.0000	0.0000	0.0000
46	FLL6	-0.0454	-0.3690	0.1437	0.0000	0.0000	0.0000	0.0000	0.0000
46	FLL7	0.1597	-0.9135	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
46	FLL8	-0.0142	-0.3842	-0.0711	0.0000	0.0000	0.0000	0.0000	0.0000
46	FLL9	-0.0843	-0.0501	0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
47	Selfweight	0.1862	-2.4229	0.2229	0.0000	0.0000	0.0000	0.0000	0.0000
47	SuperDC	1.6095	-18.4161	1.5853	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL1	-0.1007	-1.6272	0.7478	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL2	0.8510	-3.6955	0.0864	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL3	1.2221	-4.6076	0.6891	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL4	1.1070	-4.5189	0.1542	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL5	0.6475	-4.4510	0.4247	0.0000	0.0000	0.0000	0.0000	0.0000
47	LL6	-0.5832	-0.3315	0.2020	0.0000	0.0000	0.0000	0.0000	0.0000
47	Eq4	2.4467	7.7144	-3.4987	1.5017	3.7251	0.3563	-0.3875	1.1813
47	FLL1	-0.1299	-0.1192	0.0780	0.0000	0.0000	0.0000	0.0000	0.0000
47	FLL2	0.2233	-0.5756	0.1227	0.0000	0.0000	0.0000	0.0000	0.0000
47	FLL3	0.3179	-0.6513	-0.0592	0.0000	0.0000	0.0000	0.0000	0.0000
47	FLL4	-0.0044	-0.2601	-0.0830	0.0000	0.0000	0.0000	0.0000	0.0000
47	FLL5	-0.1080	-0.0614	0.0374	0.0000	0.0000	0.0000	0.0000	0.0000
47	FLL6	0.0018	-0.3786	0.1521	0.0000	0.0000	0.0000	0.0000	0.0000
47	FLL7	0.4308	-0.8505	0.0517	0.0000	0.0000	0.0000	0.0000	0.0000
47	FLL8	0.1654	-0.5259	-0.1306	0.0000	0.0000	0.0000	0.0000	0.0000
47	FLL9	-0.0803	-0.1915	-0.0184	0.0000	0.0000	0.0000	0.0000	0.0000
48	Selfweight	0.2823	-1.1582	-1.0844	0.0000	0.0000	0.0000	0.0000	0.0000
48	SuperDC	1.6180	-9.3157	-6.6004	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL1	-0.4836	-0.7664	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL2	1.2518	-1.8135	-1.7406	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL3	0.5774	-1.9616	-0.2418	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL4	1.1944	-2.1412	-1.4827	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL5	0.5610	-2.1452	-1.3583	0.0000	0.0000	0.0000	0.0000	0.0000
48	LL6	-0.6042	-0.3364	-0.3073	0.0000	0.0000	0.0000	0.0000	0.0000
48	Eq4	3.7384	7.6458	4.7487	0.2295	2.3955	0.1854	0.8877	0.4592
48	FLL1	-0.1675	-0.0943	-0.0496	0.0000	0.0000	0.0000	0.0000	0.0000
48	FLL2	0.1081	-0.2087	0.0734	0.0000	0.0000	0.0000	0.0000	0.0000
48	FLL3	0.3715	-0.2723	-0.2108	0.0000	0.0000	0.0000	0.0000	0.0000
48	FLL4	0.1434	-0.1829	-0.3494	0.0000	0.0000	0.0000	0.0000	0.0000
48	FLL5	-0.1119	-0.0623	-0.0569	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
48	FLL6	-0.0854	-0.1739	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000
48	FLL7	0.3400	-0.3068	0.0086	0.0000	0.0000	0.0000	0.0000	0.0000
48	FLL8	0.3550	-0.2856	-0.4562	0.0000	0.0000	0.0000	0.0000	0.0000
48	FLL9	-0.0065	-0.1516	-0.2276	0.0000	0.0000	0.0000	0.0000	0.0000
49	Selfweight	-0.2587	0.3470	0.1894	0.0000	0.0000	0.0000	0.0000	0.0000
49	SuperDC	-1.0071	-0.5210	-0.1499	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL1	-1.0041	0.0586	0.2692	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL2	1.4841	-0.2804	-0.2409	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL3	-0.2772	0.1537	0.8685	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL4	1.0911	-0.1177	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL5	-0.1137	-0.2090	0.2803	0.0000	0.0000	0.0000	0.0000	0.0000
49	LL6	-0.9078	0.1092	-0.3184	0.0000	0.0000	0.0000	0.0000	0.0000
49	Eq4	0.5841	0.0303	6.0484	-0.2442	1.3874	0.0747	-0.0375	-0.3687
49	FLL1	-0.2166	-0.0092	-0.0392	0.0000	0.0000	0.0000	0.0000	0.0000
49	FLL2	-0.0374	0.0454	0.1896	0.0000	0.0000	0.0000	0.0000	0.0000
49	FLL3	0.4071	-0.0219	0.0485	0.0000	0.0000	0.0000	0.0000	0.0000
49	FLL4	0.2767	-0.0396	-0.2015	0.0000	0.0000	0.0000	0.0000	0.0000
49	FLL5	-0.1681	0.0202	-0.0590	0.0000	0.0000	0.0000	0.0000	0.0000
49	FLL6	-0.2014	0.0157	0.0692	0.0000	0.0000	0.0000	0.0000	0.0000
49	FLL7	0.2177	0.0445	0.2378	0.0000	0.0000	0.0000	0.0000	0.0000
49	FLL8	0.5294	-0.0772	-0.1650	0.0000	0.0000	0.0000	0.0000	0.0000
49	FLL9	0.0470	0.0232	-0.1870	0.0000	0.0000	0.0000	0.0000	0.0000
50	Selfweight	0.3506	-1.4681	1.1528	0.0000	0.0000	0.0000	0.0000	0.0000
50	SuperDC	2.9655	-12.0493	8.3025	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL1	-0.6189	-0.3013	0.2359	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL2	1.8652	-2.2208	2.1862	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL3	-0.0214	-1.2310	1.2860	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL4	1.4990	-2.1845	2.0209	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL5	0.6288	-2.5615	2.2354	0.0000	0.0000	0.0000	0.0000	0.0000
50	LL6	-0.3673	-0.7822	-0.2094	0.0000	0.0000	0.0000	0.0000	0.0000
50	Eq4	-2.1623	-12.7086	7.2723	0.3078	2.3493	-0.0043	-1.0578	0.6374
50	FLL1	-0.1080	0.0055	-0.0231	0.0000	0.0000	0.0000	0.0000	0.0000
50	FLL2	-0.0594	-0.1272	0.1402	0.0000	0.0000	0.0000	0.0000	0.0000
50	FLL3	0.3684	-0.3626	0.3859	0.0000	0.0000	0.0000	0.0000	0.0000
50	FLL4	0.3670	-0.3525	0.2053	0.0000	0.0000	0.0000	0.0000	0.0000
50	FLL5	-0.0680	-0.1448	-0.0388	0.0000	0.0000	0.0000	0.0000	0.0000
50	FLL6	-0.1261	-0.0688	0.0579	0.0000	0.0000	0.0000	0.0000	0.0000
50	FLL7	0.1352	-0.2775	0.3116	0.0000	0.0000	0.0000	0.0000	0.0000
50	FLL8	0.5772	-0.4945	0.4441	0.0000	0.0000	0.0000	0.0000	0.0000
50	FLL9	0.1715	-0.2814	-0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
51	Selfweight	-0.3970	-1.8819	-0.5108	0.0000	0.0000	0.0000	0.0000	0.0000
51	SuperDC	-2.6676	-13.4486	-3.1537	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL1	-0.5305	-0.1035	-0.2667	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL2	0.1969	-1.9941	0.7855	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL3	-0.6146	-0.8980	-0.0256	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL4	0.0267	-2.1136	0.3603	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL5	-0.8248	-2.3089	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000
51	LL6	-0.2516	-1.6099	-1.4376	0.0000	0.0000	0.0000	0.0000	0.0000
51	Eq4	0.0626	-11.3965	-6.2594	0.9530	3.2324	-0.3916	1.2596	1.0486

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
51	FLL1	-0.0682	0.0270	-0.0439	0.0000	0.0000	0.0000	0.0000	0.0000
51	FLL2	-0.0990	-0.0850	-0.0307	0.0000	0.0000	0.0000	0.0000	0.0000
51	FLL3	0.0673	-0.3342	0.1586	0.0000	0.0000	0.0000	0.0000	0.0000
51	FLL4	0.1381	-0.5000	-0.0479	0.0000	0.0000	0.0000	0.0000	0.0000
51	FLL5	-0.0466	-0.2981	-0.2662	0.0000	0.0000	0.0000	0.0000	0.0000
51	FLL6	-0.1125	-0.0266	-0.0548	0.0000	0.0000	0.0000	0.0000	0.0000
51	FLL7	-0.0463	-0.2322	0.0515	0.0000	0.0000	0.0000	0.0000	0.0000
51	FLL8	0.1696	-0.5366	0.1708	0.0000	0.0000	0.0000	0.0000	0.0000
51	FLL9	0.1105	-0.5781	-0.2959	0.0000	0.0000	0.0000	0.0000	0.0000
52	Selfweight	-0.3708	-1.8366	0.5242	0.0000	0.0000	0.0000	0.0000	0.0000
52	SuperDC	-1.7407	-14.3569	2.0855	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL1	-0.4828	0.1146	-0.0081	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL2	-0.7474	-1.0494	1.1397	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL3	-0.9517	-0.2886	0.4718	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL4	-0.6190	-1.3810	0.8913	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL5	-1.1965	-2.1574	1.0177	0.0000	0.0000	0.0000	0.0000	0.0000
52	LL6	0.8867	-2.5737	-0.7833	0.0000	0.0000	0.0000	0.0000	0.0000
52	Eq4	-0.4572	7.1021	-6.0572	0.8944	3.2597	0.5047	-1.2771	1.0480
52	FLL1	-0.0428	0.0248	-0.0145	0.0000	0.0000	0.0000	0.0000	0.0000
52	FLL2	-0.1236	-0.0081	0.0308	0.0000	0.0000	0.0000	0.0000	0.0000
52	FLL3	-0.1082	-0.1790	0.2014	0.0000	0.0000	0.0000	0.0000	0.0000
52	FLL4	0.1507	-0.5167	0.0431	0.0000	0.0000	0.0000	0.0000	0.0000
52	FLL5	0.1642	-0.4766	-0.1451	0.0000	0.0000	0.0000	0.0000	0.0000
52	FLL6	-0.1050	0.0207	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
52	FLL7	-0.1532	-0.0953	0.1223	0.0000	0.0000	0.0000	0.0000	0.0000
52	FLL8	-0.0091	-0.4010	0.2296	0.0000	0.0000	0.0000	0.0000	0.0000
52	FLL9	0.2951	-0.7463	-0.0766	0.0000	0.0000	0.0000	0.0000	0.0000
53	Selfweight	0.1852	-1.6187	-1.0289	0.0000	0.0000	0.0000	0.0000	0.0000
53	SuperDC	2.2028	-13.3518	-6.1241	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL1	-0.4688	-0.1429	-0.1729	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL2	-0.8161	-0.8754	-0.0359	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL3	-0.9892	-0.5810	-0.2739	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL4	-0.5163	-1.2174	-0.1993	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL5	-0.8110	-2.2877	-1.2444	0.0000	0.0000	0.0000	0.0000	0.0000
53	LL6	2.1527	-2.1178	-1.3790	0.0000	0.0000	0.0000	0.0000	0.0000
53	Eq4	2.7215	7.9143	5.2764	0.3516	2.4567	0.1303	1.1057	0.7992
53	FLL1	-0.0399	-0.0123	-0.0291	0.0000	0.0000	0.0000	0.0000	0.0000
53	FLL2	-0.1255	-0.0538	-0.0322	0.0000	0.0000	0.0000	0.0000	0.0000
53	FLL3	-0.1274	-0.1357	0.0076	0.0000	0.0000	0.0000	0.0000	0.0000
53	FLL4	0.2750	-0.3631	-0.0376	0.0000	0.0000	0.0000	0.0000	0.0000
53	FLL5	0.3987	-0.3922	-0.2554	0.0000	0.0000	0.0000	0.0000	0.0000
53	FLL6	-0.1027	-0.0342	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
53	FLL7	-0.1650	-0.1111	-0.0222	0.0000	0.0000	0.0000	0.0000	0.0000
53	FLL8	0.0210	-0.2728	0.0064	0.0000	0.0000	0.0000	0.0000	0.0000
53	FLL9	0.4828	-0.4915	-0.0496	0.0000	0.0000	0.0000	0.0000	0.0000
54	Selfweight	-0.1923	0.3288	-0.6001	0.0000	0.0000	0.0000	0.0000	0.0000
54	SuperDC	-0.8746	0.1086	-3.0548	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL1	-0.6460	-0.0819	-0.2514	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL2	-1.2986	0.0554	-0.1041	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
54	LL3	-1.4484	-0.0966	-0.4241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL4	-1.0855	0.0035	-0.0261	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL5	-1.4782	0.0378	-1.2814	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	LL6	2.2870	-0.0014	-0.4006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	Eq4	4.3410	0.9469	4.1937	-0.1221	1.2318	0.2997	0.0893	-0.1968	0.0000
54	FLL1	-0.0540	-0.0125	-0.0350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	FLL2	-0.1795	-0.0146	-0.0532	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	FLL3	-0.2023	0.0147	-0.0081	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	FLL4	0.1968	0.0138	0.1745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	FLL5	0.4235	-0.0003	-0.0742	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	FLL6	-0.1425	-0.0176	-0.0550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	FLL7	-0.2473	-0.0049	-0.0474	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	FLL8	-0.0695	0.0281	0.0829	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
54	FLL9	0.3891	0.0536	0.1903	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	Selfweight	-0.1923	0.3288	0.6001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	SuperDC	-0.8781	0.1066	3.0640	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL1	-0.4298	0.0094	-0.1368	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL2	-1.1814	0.0036	0.2244	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL3	-1.0548	0.0199	-0.1325	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL4	-1.0289	0.0204	0.4084	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL5	-0.9581	0.0283	-0.0790	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	LL6	2.2870	-0.0014	0.4006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	Eq4	-4.6539	-0.9172	5.1406	-0.1221	1.2318	-0.2997	-0.0893	-0.1968	0.0000
55	FLL1	-0.0191	0.0025	-0.0271	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	FLL2	-0.1356	0.0015	-0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	FLL3	-0.1915	-0.0003	0.0413	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	FLL4	0.0456	0.0057	0.2733	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	FLL5	0.4235	-0.0003	0.0742	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	FLL6	-0.0947	0.0022	-0.0294	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	FLL7	-0.2065	0.0011	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	FLL8	-0.1359	0.0013	0.1620	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	FLL9	0.2379	0.0170	0.2791	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	Selfweight	0.1852	-1.6187	1.0289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	SuperDC	2.1974	-13.3486	6.1292	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL1	-0.2692	0.0619	-0.1755	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL2	-0.8094	-0.3021	0.0575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL3	-0.6823	0.0068	-0.2593	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL4	-0.7178	-0.3606	0.1954	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL5	0.0414	-2.6820	0.6744	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	LL6	2.1527	-2.1178	1.3790	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	Eq4	-2.0719	-12.0259	7.1612	0.3516	2.4567	-0.1303	-1.1057	0.7992	0.0000
56	FLL1	-0.0090	0.0246	-0.0305	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	FLL2	-0.0880	-0.0030	-0.0308	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	FLL3	-0.1321	-0.0554	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	FLL4	0.0065	-0.1670	0.2239	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	FLL5	0.3987	-0.3922	0.2554	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	FLL6	-0.0593	0.0135	-0.0383	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	FLL7	-0.1379	-0.0306	-0.0171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	FLL8	-0.1060	-0.1260	0.1190	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
56	FLL9	0.1830	-0.3089	0.3056	0.0000	0.0000	0.0000	0.0000	0.0000
57	Selfweight	-0.3708	-1.8366	-0.5242	0.0000	0.0000	0.0000	0.0000	0.0000
57	SuperDC	-1.7582	-14.3497	-2.0760	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL1	-0.1177	0.1254	-0.0884	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL2	-0.5631	-0.0029	-0.2931	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL3	-0.3720	0.2118	-0.2238	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL4	-0.5585	-0.0613	-0.2512	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL5	-0.4815	-2.9644	-0.7386	0.0000	0.0000	0.0000	0.0000	0.0000
57	LL6	0.8867	-2.5737	0.7833	0.0000	0.0000	0.0000	0.0000	0.0000
57	Eq4	-0.1023	-11.5068	-6.7031	0.8944	3.2597	-0.5047	1.2771	1.0480
57	FLL1	0.0027	0.0251	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000
57	FLL2	-0.0469	0.0212	-0.0316	0.0000	0.0000	0.0000	0.0000	0.0000
57	FLL3	-0.0936	-0.0061	-0.0489	0.0000	0.0000	0.0000	0.0000	0.0000
57	FLL4	-0.0765	-0.1290	-0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
57	FLL5	0.1642	-0.4766	0.1451	0.0000	0.0000	0.0000	0.0000	0.0000
57	FLL6	-0.0263	0.0278	-0.0193	0.0000	0.0000	0.0000	0.0000	0.0000
57	FLL7	-0.0851	0.0137	-0.0505	0.0000	0.0000	0.0000	0.0000	0.0000
57	FLL8	-0.1140	-0.0665	-0.0414	0.0000	0.0000	0.0000	0.0000	0.0000
57	FLL9	0.0076	-0.3135	0.0608	0.0000	0.0000	0.0000	0.0000	0.0000
58	Selfweight	-0.3970	-1.8819	0.5108	0.0000	0.0000	0.0000	0.0000	0.0000
58	SuperDC	-2.6846	-13.4823	3.1727	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL1	-0.0380	0.0833	-0.0714	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL2	-0.4766	0.1840	-0.0784	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL3	-0.2193	0.1650	-0.1190	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL4	-0.5149	0.1077	-0.0099	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL5	-0.3118	-3.1461	0.3412	0.0000	0.0000	0.0000	0.0000	0.0000
58	LL6	-0.2516	-1.6099	1.4376	0.0000	0.0000	0.0000	0.0000	0.0000
58	Eq4	-0.9049	7.2475	-5.2769	0.9530	3.2324	0.3916	-1.2596	1.0486
58	FLL1	0.0116	-0.0025	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
58	FLL2	-0.0277	0.0284	-0.0203	0.0000	0.0000	0.0000	0.0000	0.0000
58	FLL3	-0.0811	0.0316	-0.0129	0.0000	0.0000	0.0000	0.0000	0.0000
58	FLL4	-0.1318	-0.0395	0.0598	0.0000	0.0000	0.0000	0.0000	0.0000
58	FLL5	-0.0466	-0.2981	0.2662	0.0000	0.0000	0.0000	0.0000	0.0000
58	FLL6	-0.0088	0.0176	-0.0151	0.0000	0.0000	0.0000	0.0000	0.0000
58	FLL7	-0.0633	0.0395	-0.0233	0.0000	0.0000	0.0000	0.0000	0.0000
58	FLL8	-0.1303	0.0065	0.0185	0.0000	0.0000	0.0000	0.0000	0.0000
58	FLL9	-0.1334	-0.1609	0.1652	0.0000	0.0000	0.0000	0.0000	0.0000
59	Selfweight	0.3506	-1.4681	-1.1528	0.0000	0.0000	0.0000	0.0000	0.0000
59	SuperDC	2.9495	-12.0908	-8.3343	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL1	-0.0346	0.0163	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL2	-0.4612	-0.0731	-0.1704	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL3	-0.2176	-0.0362	-0.1398	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL4	-0.5161	-0.1554	-0.2055	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL5	1.2503	-2.8755	-2.2181	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL6	-0.3673	-0.7822	0.2094	0.0000	0.0000	0.0000	0.0000	0.0000
59	Eq4	3.0509	8.9755	4.6995	0.3078	2.3493	0.0043	1.0578	0.6374
59	FLL1	0.0087	-0.0067	-0.0072	0.0000	0.0000	0.0000	0.0000	0.0000
59	FLL2	-0.0249	0.0063	-0.0106	0.0000	0.0000	0.0000	0.0000	0.0000
59	FLL3	-0.0777	-0.0098	-0.0261	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
59	FLL4	-0.1364	-0.0657	-0.0334	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	FLL5	-0.0680	-0.1448	0.0388	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	FLL6	-0.0083	0.0024	-0.0091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	FLL7	-0.0591	0.0010	-0.0212	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	FLL8	-0.1298	-0.0404	-0.0382	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	FLL9	-0.1451	-0.1180	-0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	Selfweight	-0.2587	0.3470	-0.1894	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	SuperDC	-1.0163	-0.5123	0.1124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL1	-0.0069	-0.0131	-0.0534	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL2	-0.5430	-0.0746	-0.2178	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL3	-0.1953	-0.0473	-0.1817	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL4	-0.6185	-0.0788	-0.2519	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL5	0.7647	-0.0722	-0.1941	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	LL6	-0.9078	0.1092	0.3184	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	Eq4	-0.9636	-0.1961	6.1032	-0.2442	1.3874	-0.0747	0.0375	-0.3687	0.0000
60	FLL1	0.0182	0.0001	-0.0084	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	FLL2	-0.0241	-0.0054	-0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	FLL3	-0.0933	-0.0123	-0.0336	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	FLL4	-0.1939	-0.0139	-0.0349	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	FLL5	-0.1681	0.0202	0.0590	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	FLL6	-0.0022	-0.0030	-0.0126	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	FLL7	-0.0665	-0.0105	-0.0288	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	FLL8	-0.1700	-0.0169	-0.0451	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	FLL9	-0.2376	-0.0034	-0.0044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	Selfweight	0.2823	-1.1582	1.0844	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	SuperDC	1.6342	-9.3334	6.5768	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL1	0.0152	0.0429	-0.0447	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL2	-0.2541	0.0763	-0.1478	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL3	-0.0473	0.1226	-0.1410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL4	-0.2778	0.1052	-0.1719	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL5	1.1728	-2.1041	1.4136	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	LL6	-0.6042	-0.3364	0.3073	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	Eq4	-3.2863	-10.5707	6.8124	0.2295	2.3955	-0.1854	-0.8877	0.4592	0.0000
61	FLL1	0.0163	0.0135	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	FLL2	-0.0103	0.0065	-0.0113	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	FLL3	-0.0456	0.0091	-0.0222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	FLL4	-0.1030	-0.0033	-0.0164	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	FLL5	-0.1119	-0.0623	0.0569	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	FLL6	0.0034	0.0103	-0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	FLL7	-0.0316	0.0092	-0.0198	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	FLL8	-0.0866	0.0067	-0.0267	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	FLL9	-0.1358	-0.0295	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
62	Selfweight	0.1862	-2.4229	-0.2229	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
62	SuperDC	1.6393	-18.4905	-1.6423	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL1	0.0224	0.0514	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL2	-0.1548	0.1223	-0.1191	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL3	-0.0053	0.1575	-0.0288	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL4	-0.1738	0.1618	-0.1274	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
62	LL5	1.0809	-4.5472	-0.2903	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
62	LL6	-0.5832	-0.3315	-0.2020	0.0000	0.0000	0.0000	0.0000	0.0000
62	Eq4	-1.9819	-13.4784	-4.0058	1.5017	3.7251	-0.3563	0.3875	1.1813
62	FLL1	0.0129	0.0152	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
62	FLL2	-0.0042	0.0090	-0.0056	0.0000	0.0000	0.0000	0.0000	0.0000
62	FLL3	-0.0285	0.0162	-0.0212	0.0000	0.0000	0.0000	0.0000	0.0000
62	FLL4	-0.0758	0.0076	-0.0436	0.0000	0.0000	0.0000	0.0000	0.0000
62	FLL5	-0.1080	-0.0614	-0.0374	0.0000	0.0000	0.0000	0.0000	0.0000
62	FLL6	0.0051	0.0124	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
62	FLL7	-0.0180	0.0147	-0.0154	0.0000	0.0000	0.0000	0.0000	0.0000
62	FLL8	-0.0595	0.0180	-0.0383	0.0000	0.0000	0.0000	0.0000	0.0000
62	FLL9	-0.1110	-0.0199	-0.0533	0.0000	0.0000	0.0000	0.0000	0.0000
63	Selfweight	-0.3627	-1.8202	-0.3339	0.0000	0.0000	0.0000	0.0000	0.0000
63	SuperDC	-1.6165	-14.9295	-1.4336	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL1	0.0180	0.0137	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL2	-0.0417	0.1264	-0.0734	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL3	0.0208	0.0756	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL4	-0.0497	0.1536	-0.0649	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL5	-0.0005	-4.0178	-0.2937	0.0000	0.0000	0.0000	0.0000	0.0000
63	LL6	-0.3402	0.1100	-0.1945	0.0000	0.0000	0.0000	0.0000	0.0000
63	Eq4	0.0978	-4.7232	-6.8772	0.8032	3.7391	-0.3303	2.1082	0.8638
63	FLL1	0.0065	0.0013	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000
63	FLL2	0.0006	0.0061	-0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
63	FLL3	-0.0084	0.0203	-0.0147	0.0000	0.0000	0.0000	0.0000	0.0000
63	FLL4	-0.0319	0.0377	-0.0322	0.0000	0.0000	0.0000	0.0000	0.0000
63	FLL5	-0.0630	0.0204	-0.0360	0.0000	0.0000	0.0000	0.0000	0.0000
63	FLL6	0.0041	0.0035	0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
63	FLL7	-0.0039	0.0149	-0.0106	0.0000	0.0000	0.0000	0.0000	0.0000
63	FLL8	-0.0220	0.0352	-0.0271	0.0000	0.0000	0.0000	0.0000	0.0000
63	FLL9	-0.0542	0.0409	-0.0430	0.0000	0.0000	0.0000	0.0000	0.0000
64	Selfweight	-0.0228	-2.1494	-0.1099	0.0000	0.0000	0.0000	0.0000	0.0000
64	SuperDC	-0.5790	-15.8609	0.8430	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL1	0.0305	-0.0074	0.0067	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL2	-0.0469	0.0988	-0.0636	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL3	0.0440	-0.0041	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL4	-0.0554	0.0765	-0.0533	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL5	0.4856	-3.9026	0.1764	0.0000	0.0000	0.0000	0.0000	0.0000
64	LL6	-0.5206	0.0481	-0.0848	0.0000	0.0000	0.0000	0.0000	0.0000
64	Eq4	-1.4741	7.4715	-5.3049	0.9283	3.5401	0.2570	-0.4596	0.9390
64	FLL1	0.0104	-0.0131	0.0082	0.0000	0.0000	0.0000	0.0000	0.0000
64	FLL2	0.0018	0.0071	-0.0039	0.0000	0.0000	0.0000	0.0000	0.0000
64	FLL3	-0.0101	0.0196	-0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
64	FLL4	-0.0446	0.0307	-0.0229	0.0000	0.0000	0.0000	0.0000	0.0000
64	FLL5	-0.0964	0.0089	-0.0157	0.0000	0.0000	0.0000	0.0000	0.0000
64	FLL6	0.0069	-0.0022	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
64	FLL7	-0.0039	0.0162	-0.0098	0.0000	0.0000	0.0000	0.0000	0.0000
64	FLL8	-0.0294	0.0303	-0.0209	0.0000	0.0000	0.0000	0.0000	0.0000
64	FLL9	-0.0794	0.0301	-0.0263	0.0000	0.0000	0.0000	0.0000	0.0000
65	Selfweight	0.5220	-1.3405	-1.1310	0.0000	0.0000	0.0000	0.0000	0.0000
65	SuperDC	1.9566	-10.0260	-6.9957	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
65	LL1	0.0298	-0.0070	-0.0052	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL2	-0.0275	0.0382	-0.0167	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL3	0.0493	-0.0269	-0.0354	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL4	-0.0331	0.0020	-0.0503	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL5	1.1105	-2.1447	-1.4452	0.0000	0.0000	0.0000	0.0000	0.0000
65	LL6	-0.4745	-0.1063	-0.1648	0.0000	0.0000	0.0000	0.0000	0.0000
65	Eq4	-1.4242	8.8839	6.7252	0.1486	2.4172	0.1822	1.1364	0.5562
65	FLL1	0.0095	-0.0118	-0.0072	0.0000	0.0000	0.0000	0.0000	0.0000
65	FLL2	0.0026	0.0051	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000
65	FLL3	-0.0068	0.0094	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
65	FLL4	-0.0368	0.0062	-0.0121	0.0000	0.0000	0.0000	0.0000	0.0000
65	FLL5	-0.0879	-0.0197	-0.0305	0.0000	0.0000	0.0000	0.0000	0.0000
65	FLL6	0.0068	-0.0023	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
65	FLL7	-0.0016	0.0095	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000
65	FLL8	-0.0229	0.0100	-0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
65	FLL9	-0.0691	-0.0030	-0.0233	0.0000	0.0000	0.0000	0.0000	0.0000
66	Selfweight	0.5278	0.2508	-0.5129	0.0000	0.0000	0.0000	0.0000	0.0000
66	SuperDC	2.5745	-1.3714	-4.1013	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL1	0.0366	0.0008	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL2	-0.0235	-0.0126	-0.0253	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL3	0.0598	-0.0066	-0.0215	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL4	-0.0357	-0.0208	-0.0552	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL5	1.5237	-0.2472	-0.6325	0.0000	0.0000	0.0000	0.0000	0.0000
66	LL6	-0.6072	-0.0769	-0.2438	0.0000	0.0000	0.0000	0.0000	0.0000
66	Eq4	-1.1930	1.0686	4.8001	-0.3172	1.2550	0.3024	0.1038	-0.3245
66	FLL1	0.0099	-0.0006	-0.0038	0.0000	0.0000	0.0000	0.0000	0.0000
66	FLL2	0.0043	0.0002	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
66	FLL3	-0.0062	-0.0019	-0.0030	0.0000	0.0000	0.0000	0.0000	0.0000
66	FLL4	-0.0437	-0.0075	-0.0197	0.0000	0.0000	0.0000	0.0000	0.0000
66	FLL5	-0.1124	-0.0142	-0.0451	0.0000	0.0000	0.0000	0.0000	0.0000
66	FLL6	0.0083	0.0001	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
66	FLL7	0.0001	-0.0007	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
66	FLL8	-0.0257	-0.0052	-0.0123	0.0000	0.0000	0.0000	0.0000	0.0000
66	FLL9	-0.0855	-0.0125	-0.0361	0.0000	0.0000	0.0000	0.0000	0.0000
67	Selfweight	0.6232	0.1749	0.5228	0.0000	0.0000	0.0000	0.0000	0.0000
67	SuperDC	2.8577	-2.2117	4.8954	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL1	0.0435	0.0044	-0.0065	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL2	-0.0053	0.0019	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL3	0.1069	0.0164	-0.0388	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL4	0.0291	0.0133	-0.0565	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL5	1.6064	-0.5020	1.1254	0.0000	0.0000	0.0000	0.0000	0.0000
67	LL6	-0.3785	0.0154	-0.1424	0.0000	0.0000	0.0000	0.0000	0.0000
67	Eq4	-11.9354	-3.5102	7.7675	-0.1864	1.4218	-0.3391	-0.2803	-0.1886
67	FLL1	0.0201	0.0035	-0.0066	0.0000	0.0000	0.0000	0.0000	0.0000
67	FLL2	0.0013	-0.0005	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000
67	FLL3	-0.0060	-0.0006	-0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
67	FLL4	-0.0282	0.0006	-0.0129	0.0000	0.0000	0.0000	0.0000	0.0000
67	FLL5	-0.0701	0.0029	-0.0264	0.0000	0.0000	0.0000	0.0000	0.0000
67	FLL6	0.0106	0.0012	-0.0020	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
67	FLL7	-0.0029	-0.0009	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
67	FLL8	-0.0174	0.0000	-0.0086	0.0000	0.0000	0.0000	0.0000	0.0000
67	FLL9	-0.0542	0.0017	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000
68	Selfweight	0.7040	-1.3428	0.9774	0.0000	0.0000	0.0000	0.0000	0.0000
68	SuperDC	2.6683	-10.6520	7.1580	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL1	0.0256	0.0233	-0.0054	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL2	-0.0031	0.0272	-0.0230	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL3	0.0616	0.0859	-0.0384	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL4	0.0149	0.0798	-0.0585	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL5	1.1403	-1.6420	1.7483	0.0000	0.0000	0.0000	0.0000	0.0000
68	LL6	-0.2375	0.0512	-0.1816	0.0000	0.0000	0.0000	0.0000	0.0000
68	Eq4	-6.1514	-15.3887	9.0597	0.6039	2.6924	-0.1776	-1.6036	0.8603
68	FLL1	0.0114	0.0156	-0.0072	0.0000	0.0000	0.0000	0.0000	0.0000
68	FLL2	0.0010	-0.0011	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
68	FLL3	-0.0034	0.0003	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
68	FLL4	-0.0173	0.0061	-0.0146	0.0000	0.0000	0.0000	0.0000	0.0000
68	FLL5	-0.0440	0.0095	-0.0336	0.0000	0.0000	0.0000	0.0000	0.0000
68	FLL6	0.0062	0.0063	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
68	FLL7	-0.0014	-0.0017	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
68	FLL8	-0.0105	0.0042	-0.0090	0.0000	0.0000	0.0000	0.0000	0.0000
68	FLL9	-0.0337	0.0091	-0.0268	0.0000	0.0000	0.0000	0.0000	0.0000
69	Selfweight	0.1676	-1.7191	-0.0141	0.0000	0.0000	0.0000	0.0000	0.0000
69	SuperDC	-0.5637	-13.2365	-1.8375	0.0000	0.0000	0.0000	0.0000	0.0000
69	LL1	0.0147	0.0135	0.0203	0.0000	0.0000	0.0000	0.0000	0.0000
69	LL2	0.0014	0.0243	0.0066	0.0000	0.0000	0.0000	0.0000	0.0000
69	LL3	0.0393	0.0592	0.0572	0.0000	0.0000	0.0000	0.0000	0.0000
69	LL4	0.0170	0.0664	0.0306	0.0000	0.0000	0.0000	0.0000	0.0000
69	LL5	0.3087	-1.6614	0.2898	0.0000	0.0000	0.0000	0.0000	0.0000
69	LL6	-0.0984	0.1137	-0.1162	0.0000	0.0000	0.0000	0.0000	0.0000
69	Eq4	-5.1757	-12.0819	-7.9578	0.8654	3.5266	-0.5987	1.0041	1.1311
69	FLL1	0.0074	0.0109	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000
69	FLL2	0.0002	-0.0014	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
69	FLL3	-0.0017	0.0011	-0.0016	0.0000	0.0000	0.0000	0.0000	0.0000
69	FLL4	-0.0071	0.0101	-0.0076	0.0000	0.0000	0.0000	0.0000	0.0000
69	FLL5	-0.0182	0.0210	-0.0215	0.0000	0.0000	0.0000	0.0000	0.0000
69	FLL6	0.0037	0.0038	0.0051	0.0000	0.0000	0.0000	0.0000	0.0000
69	FLL7	-0.0010	-0.0012	-0.0011	0.0000	0.0000	0.0000	0.0000	0.0000
69	FLL8	-0.0044	0.0065	-0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
69	FLL9	-0.0140	0.0176	-0.0158	0.0000	0.0000	0.0000	0.0000	0.0000
70	Selfweight	-0.1230	-1.4003	0.5083	0.0000	0.0000	0.0000	0.0000	0.0000
70	SuperDC	-0.8229	-13.3900	1.9474	0.0000	0.0000	0.0000	0.0000	0.0000
70	LL1	0.0094	-0.0208	0.0177	0.0000	0.0000	0.0000	0.0000	0.0000
70	LL2	0.0061	-0.0033	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000
70	LL3	0.0302	-0.0550	0.0488	0.0000	0.0000	0.0000	0.0000	0.0000
70	LL4	0.0218	-0.0237	0.0246	0.0000	0.0000	0.0000	0.0000	0.0000
70	LL5	-0.1795	-0.8500	0.3434	0.0000	0.0000	0.0000	0.0000	0.0000
70	LL6	-0.0209	0.1486	-0.1120	0.0000	0.0000	0.0000	0.0000	0.0000
70	Eq4	-4.5030	4.2702	-6.2498	0.3872	3.6329	0.0907	-1.5833	0.5670
70	FLL1	0.0055	-0.0100	0.0088	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
70	FLL2	-0.0002	-0.0005	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
70	FLL3	-0.0004	0.0020	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
70	FLL4	-0.0010	0.0102	-0.0073	0.0000	0.0000	0.0000	0.0000	0.0000
70	FLL5	-0.0039	0.0275	-0.0207	0.0000	0.0000	0.0000	0.0000	0.0000
70	FLL6	0.0024	-0.0051	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
70	FLL7	-0.0007	0.0011	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
70	FLL8	-0.0005	0.0060	-0.0042	0.0000	0.0000	0.0000	0.0000	0.0000
70	FLL9	-0.0026	0.0206	-0.0152	0.0000	0.0000	0.0000	0.0000	0.0000
71	Selfweight	0.4959	-1.8547	0.2416	0.0000	0.0000	0.0000	0.0000	0.0000
71	SuperDC	4.1709	-18.2870	0.3042	0.0000	0.0000	0.0000	0.0000	0.0000
71	LL1	0.0083	-0.0295	0.0048	0.0000	0.0000	0.0000	0.0000	0.0000
71	LL2	0.0023	-0.0083	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
71	LL3	0.0232	-0.0815	0.0108	0.0000	0.0000	0.0000	0.0000	0.0000
71	LL4	0.0121	-0.0414	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000
71	LL5	0.2127	-0.9471	0.2543	0.0000	0.0000	0.0000	0.0000	0.0000
71	LL6	-0.0475	0.1805	-0.0521	0.0000	0.0000	0.0000	0.0000	0.0000
71	Eq4	-2.1543	6.0087	-1.8110	0.8223	3.8211	-0.2140	0.3585	0.8867
71	FLL1	0.0043	-0.0148	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
71	FLL2	0.0001	-0.0006	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
71	FLL3	-0.0007	0.0024	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
71	FLL4	-0.0032	0.0120	-0.0037	0.0000	0.0000	0.0000	0.0000	0.0000
71	FLL5	-0.0088	0.0334	-0.0097	0.0000	0.0000	0.0000	0.0000	0.0000
71	FLL6	0.0021	-0.0074	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
71	FLL7	-0.0005	0.0015	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
71	FLL8	-0.0019	0.0069	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
71	FLL9	-0.0065	0.0247	-0.0073	0.0000	0.0000	0.0000	0.0000	0.0000
72	Selfweight	0.3417	-1.1842	-0.2790	0.0000	0.0000	0.0000	0.0000	0.0000
72	SuperDC	2.9824	-14.1749	-2.9250	0.0000	0.0000	0.0000	0.0000	0.0000
72	LL1	0.0065	-0.0208	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
72	LL2	0.0023	-0.0071	-0.0011	0.0000	0.0000	0.0000	0.0000	0.0000
72	LL3	0.0186	-0.0591	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000
72	LL4	0.0105	-0.0326	-0.0043	0.0000	0.0000	0.0000	0.0000	0.0000
72	LL5	0.1342	-0.5949	-0.0791	0.0000	0.0000	0.0000	0.0000	0.0000
72	LL6	-0.0335	0.1113	0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
72	Eq4	-1.6889	3.4257	-0.2637	0.3457	3.8244	-0.3121	1.0261	0.4711
72	FLL1	0.0034	-0.0108	-0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
72	FLL2	0.0001	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
72	FLL3	-0.0005	0.0016	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
72	FLL4	-0.0022	0.0073	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
72	FLL5	-0.0062	0.0206	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000
72	FLL6	0.0016	-0.0052	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
72	FLL7	-0.0004	0.0012	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
72	FLL8	-0.0013	0.0042	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
72	FLL9	-0.0045	0.0151	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000
73	Selfweight	0.0450	-0.9363	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000
73	SuperDC	0.9375	-15.5115	0.1270	0.0000	0.0000	0.0000	0.0000	0.0000
73	LL1	0.0853	-1.4760	-0.1141	0.0000	0.0000	0.0000	0.0000	0.0000
73	LL2	0.0511	-0.9352	-0.0661	0.0000	0.0000	0.0000	0.0000	0.0000
73	LL3	0.2786	-4.6283	-0.0237	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
73	LL4	0.2060	-3.4346	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000
73	LL5	0.2043	-3.4047	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000
73	LL6	-0.0051	0.0845	0.0192	0.0000	0.0000	0.0000	0.0000	0.0000
73	Eq4	0.6645	-6.8736	-1.6438	0.2080	2.8818	0.1630	-0.0452	0.6987
73	FLL1	0.0472	-0.7728	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
73	FLL2	0.0021	-0.0526	-0.0169	0.0000	0.0000	0.0000	0.0000	0.0000
73	FLL3	-0.0025	0.0317	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000
73	FLL4	-0.0022	0.0335	0.0069	0.0000	0.0000	0.0000	0.0000	0.0000
73	FLL5	-0.0009	0.0157	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000
73	FLL6	0.0222	-0.3795	-0.0209	0.0000	0.0000	0.0000	0.0000	0.0000
73	FLL7	-0.0009	-0.0012	-0.0047	0.0000	0.0000	0.0000	0.0000	0.0000
73	FLL8	-0.0031	0.0443	0.0082	0.0000	0.0000	0.0000	0.0000	0.0000
73	FLL9	-0.0019	0.0298	0.0064	0.0000	0.0000	0.0000	0.0000	0.0000
74	Selfweight	0.1127	-1.0823	-0.0461	0.0000	0.0000	0.0000	0.0000	0.0000
74	SuperDC	2.7718	-15.9817	0.7184	0.0000	0.0000	0.0000	0.0000	0.0000
74	LL1	0.2442	-1.7301	-0.2736	0.0000	0.0000	0.0000	0.0000	0.0000
74	LL2	0.1253	-1.1552	-0.1453	0.0000	0.0000	0.0000	0.0000	0.0000
74	LL3	0.8251	-4.8498	0.0425	0.0000	0.0000	0.0000	0.0000	0.0000
74	LL4	0.6019	-3.5946	0.0973	0.0000	0.0000	0.0000	0.0000	0.0000
74	LL5	0.5965	-3.5553	0.1168	0.0000	0.0000	0.0000	0.0000	0.0000
74	LL6	-0.0179	0.1048	0.0531	0.0000	0.0000	0.0000	0.0000	0.0000
74	Eq4	2.4963	-7.8842	-3.9399	0.4531	2.7309	0.0439	-0.0640	0.6440
74	FLL1	0.1446	-0.7911	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000
74	FLL2	0.0017	-0.0938	-0.0429	0.0000	0.0000	0.0000	0.0000	0.0000
74	FLL3	-0.0121	0.0249	0.0144	0.0000	0.0000	0.0000	0.0000	0.0000
74	FLL4	-0.0086	0.0375	0.0195	0.0000	0.0000	0.0000	0.0000	0.0000
74	FLL5	-0.0033	0.0194	0.0098	0.0000	0.0000	0.0000	0.0000	0.0000
74	FLL6	0.0646	-0.4295	-0.0476	0.0000	0.0000	0.0000	0.0000	0.0000
74	FLL7	-0.0088	-0.0271	-0.0101	0.0000	0.0000	0.0000	0.0000	0.0000
74	FLL8	-0.0133	0.0444	0.0238	0.0000	0.0000	0.0000	0.0000	0.0000
74	FLL9	-0.0071	0.0350	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000
75	Selfweight	0.0660	-1.1601	-0.2151	0.0000	0.0000	0.0000	0.0000	0.0000
75	SuperDC	1.6931	-14.7829	1.4112	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL1	0.1316	-1.7802	-0.5802	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL2	0.0401	-1.2787	-0.3236	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL3	0.5143	-4.5535	0.0761	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL4	0.3629	-3.3895	0.1848	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL5	0.3560	-3.3453	0.2231	0.0000	0.0000	0.0000	0.0000	0.0000
75	LL6	-0.0200	0.1080	0.1038	0.0000	0.0000	0.0000	0.0000	0.0000
75	Eq4	2.5013	-5.5039	-6.6551	0.3327	2.7942	-0.0120	-0.0158	0.8117
75	FLL1	0.0935	-0.7158	0.0267	0.0000	0.0000	0.0000	0.0000	0.0000
75	FLL2	-0.0038	-0.1296	-0.0912	0.0000	0.0000	0.0000	0.0000	0.0000
75	FLL3	-0.0114	0.0044	0.0279	0.0000	0.0000	0.0000	0.0000	0.0000
75	FLL4	-0.0090	0.0328	0.0381	0.0000	0.0000	0.0000	0.0000	0.0000
75	FLL5	-0.0037	0.0200	0.0192	0.0000	0.0000	0.0000	0.0000	0.0000
75	FLL6	0.0368	-0.4299	-0.1012	0.0000	0.0000	0.0000	0.0000	0.0000
75	FLL7	-0.0101	-0.0619	-0.0230	0.0000	0.0000	0.0000	0.0000	0.0000
75	FLL8	-0.0133	0.0303	0.0463	0.0000	0.0000	0.0000	0.0000	0.0000
75	FLL9	-0.0076	0.0331	0.0351	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
76	Selfweight	0.1592	-1.2941	-0.3792	0.0000	0.0000	0.0000	0.0000	0.0000
76	SuperDC	0.0171	-11.3558	0.5276	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL1	0.0847	-1.7631	-1.3557	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL2	0.0647	-1.4993	-0.9647	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL3	0.0801	-3.6082	-0.4467	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL4	0.0409	-2.7485	-0.1735	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL5	0.0267	-2.7042	-0.1075	0.0000	0.0000	0.0000	0.0000	0.0000
76	LL6	-0.0303	0.0855	0.1663	0.0000	0.0000	0.0000	0.0000	0.0000
76	Eq4	-0.6979	3.4294	-5.3309	0.7225	2.3844	0.2045	0.3354	0.8521
76	FLL1	0.0010	-0.5011	-0.0119	0.0000	0.0000	0.0000	0.0000	0.0000
76	FLL2	0.0194	-0.1996	-0.2150	0.0000	0.0000	0.0000	0.0000	0.0000
76	FLL3	0.0048	-0.0478	0.0169	0.0000	0.0000	0.0000	0.0000	0.0000
76	FLL4	-0.0075	0.0115	0.0532	0.0000	0.0000	0.0000	0.0000	0.0000
76	FLL5	-0.0056	0.0158	0.0308	0.0000	0.0000	0.0000	0.0000	0.0000
76	FLL6	0.0168	-0.4006	-0.2505	0.0000	0.0000	0.0000	0.0000	0.0000
76	FLL7	0.0166	-0.1383	-0.0916	0.0000	0.0000	0.0000	0.0000	0.0000
76	FLL8	-0.0041	-0.0134	0.0539	0.0000	0.0000	0.0000	0.0000	0.0000
76	FLL9	-0.0083	0.0189	0.0523	0.0000	0.0000	0.0000	0.0000	0.0000
77	Selfweight	0.1870	-0.8864	-0.8515	0.0000	0.0000	0.0000	0.0000	0.0000
77	SuperDC	-0.3574	-7.6913	-6.6553	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL1	0.3139	-1.7459	-2.8553	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL2	0.2398	-1.5878	-2.3791	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL3	0.0724	-2.5469	-2.8071	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL4	0.0103	-1.9813	-2.0237	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL5	-0.0163	-1.9530	-1.9262	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL6	-0.0571	0.0449	0.2118	0.0000	0.0000	0.0000	0.0000	0.0000
77	Eq4	-0.0377	7.8645	3.1003	0.4867	1.8439	-0.0167	0.1693	0.5531
77	FLL1	-0.0141	-0.3095	-0.2903	0.0000	0.0000	0.0000	0.0000	0.0000
77	FLL2	0.0607	-0.2387	-0.4280	0.0000	0.0000	0.0000	0.0000	0.0000
77	FLL3	0.0044	-0.0587	-0.0505	0.0000	0.0000	0.0000	0.0000	0.0000
77	FLL4	-0.0154	-0.0031	0.0476	0.0000	0.0000	0.0000	0.0000	0.0000
77	FLL5	-0.0106	0.0083	0.0392	0.0000	0.0000	0.0000	0.0000	0.0000
77	FLL6	0.0569	-0.3698	-0.5719	0.0000	0.0000	0.0000	0.0000	0.0000
77	FLL7	0.0364	-0.1594	-0.2493	0.0000	0.0000	0.0000	0.0000	0.0000
77	FLL8	-0.0112	-0.0312	0.0162	0.0000	0.0000	0.0000	0.0000	0.0000
77	FLL9	-0.0163	0.0054	0.0565	0.0000	0.0000	0.0000	0.0000	0.0000
78	Selfweight	-0.0509	-0.0255	-0.4647	0.0000	0.0000	0.0000	0.0000	0.0000
78	SuperDC	0.4230	-6.0518	-5.4377	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL1	0.8829	-2.1964	-1.8775	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL2	0.5988	-1.8065	-1.6506	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL3	0.5237	-2.0791	-2.3391	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL4	0.2747	-1.5896	-1.6889	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL5	0.2292	-1.5960	-1.5754	0.0000	0.0000	0.0000	0.0000	0.0000
78	LL6	-0.1195	-0.0047	0.2349	0.0000	0.0000	0.0000	0.0000	0.0000
78	Eq4	1.4724	2.7835	7.1437	-0.3524	1.5291	-0.0048	0.3064	0.3119
78	FLL1	0.0489	-0.2787	-0.2166	0.0000	0.0000	0.0000	0.0000	0.0000
78	FLL2	0.1320	-0.2700	-0.3153	0.0000	0.0000	0.0000	0.0000	0.0000
78	FLL3	-0.0137	0.0038	-0.0806	0.0000	0.0000	0.0000	0.0000	0.0000
78	FLL4	-0.0397	-0.0009	0.0452	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
78	FLL5	-0.0221	-0.0009	0.0435	0.0000	0.0000	0.0000	0.0000	0.0000
78	FLL6	0.1692	-0.4392	-0.3870	0.0000	0.0000	0.0000	0.0000	0.0000
78	FLL7	0.0560	-0.1028	-0.2363	0.0000	0.0000	0.0000	0.0000	0.0000
78	FLL8	-0.0410	0.0005	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
78	FLL9	-0.0385	-0.0008	0.0588	0.0000	0.0000	0.0000	0.0000	0.0000
79	Selfweight	-0.0831	0.0316	0.5145	0.0000	0.0000	0.0000	0.0000	0.0000
79	SuperDC	-0.0635	-5.1116	4.8993	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL1	0.8093	-1.9440	1.7223	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL2	0.4114	-1.5499	1.3630	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL3	0.3345	-1.6163	1.1709	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL4	0.1072	-1.2642	1.0096	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL5	0.0778	-1.2953	1.1139	0.0000	0.0000	0.0000	0.0000	0.0000
79	LL6	-0.1038	-0.0659	0.2305	0.0000	0.0000	0.0000	0.0000	0.0000
79	Eq4	1.3908	-2.5561	8.9487	-0.4502	1.4727	-0.0743	-0.1636	0.2256
79	FLL1	0.0714	-0.2534	0.2388	0.0000	0.0000	0.0000	0.0000	0.0000
79	FLL2	0.0836	-0.2073	0.1393	0.0000	0.0000	0.0000	0.0000	0.0000
79	FLL3	-0.0594	0.0364	-0.0689	0.0000	0.0000	0.0000	0.0000	0.0000
79	FLL4	-0.0431	-0.0141	0.0496	0.0000	0.0000	0.0000	0.0000	0.0000
79	FLL5	-0.0192	-0.0122	0.0427	0.0000	0.0000	0.0000	0.0000	0.0000
79	FLL6	0.1531	-0.3841	0.3348	0.0000	0.0000	0.0000	0.0000	0.0000
79	FLL7	-0.0145	-0.0343	-0.0440	0.0000	0.0000	0.0000	0.0000	0.0000
79	FLL8	-0.0643	0.0040	0.0093	0.0000	0.0000	0.0000	0.0000	0.0000
79	FLL9	-0.0381	-0.0172	0.0607	0.0000	0.0000	0.0000	0.0000	0.0000
80	Selfweight	0.1221	-0.9241	1.0379	0.0000	0.0000	0.0000	0.0000	0.0000
80	SuperDC	-0.6998	-7.5442	6.3015	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL1	0.2431	-1.3602	2.7484	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL2	0.0029	-1.6522	2.0654	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL3	-0.0169	-2.1297	1.9498	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL4	-0.1140	-1.8494	1.5038	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL5	-0.1444	-1.8141	1.5824	0.0000	0.0000	0.0000	0.0000	0.0000
80	LL6	-0.0840	-0.0601	0.1397	0.0000	0.0000	0.0000	0.0000	0.0000
80	Eq4	1.0346	-8.5213	6.7590	0.1780	1.8007	0.0614	-0.1530	0.4913
80	FLL1	0.0314	-0.1729	0.3490	0.0000	0.0000	0.0000	0.0000	0.0000
80	FLL2	0.0058	-0.2521	0.2648	0.0000	0.0000	0.0000	0.0000	0.0000
80	FLL3	-0.0502	-0.1497	-0.0964	0.0000	0.0000	0.0000	0.0000	0.0000
80	FLL4	-0.0299	-0.0577	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000
80	FLL5	-0.0156	-0.0111	0.0259	0.0000	0.0000	0.0000	0.0000	0.0000
80	FLL6	0.0443	-0.2877	0.5361	0.0000	0.0000	0.0000	0.0000	0.0000
80	FLL7	-0.0426	-0.2446	-0.0115	0.0000	0.0000	0.0000	0.0000	0.0000
80	FLL8	-0.0474	-0.1188	-0.0297	0.0000	0.0000	0.0000	0.0000	0.0000
80	FLL9	-0.0282	-0.0412	0.0300	0.0000	0.0000	0.0000	0.0000	0.0000
81	Selfweight	0.1759	-1.6061	0.4261	0.0000	0.0000	0.0000	0.0000	0.0000
81	SuperDC	1.2198	-14.1741	-0.3733	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL1	0.1577	-1.5956	1.3180	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL2	0.2101	-2.8070	0.4270	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL3	0.4690	-4.2611	0.0990	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL4	0.3398	-3.6634	-0.1674	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL5	0.2997	-3.5215	-0.0076	0.0000	0.0000	0.0000	0.0000	0.0000
81	LL6	-0.0651	0.0252	0.1105	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
81	Eq4	1.7803	-7.9281	-3.4851	0.8141	2.2608	0.0489	-0.2963	0.6607
81	FLL1	0.0175	-0.1223	0.1529	0.0000	0.0000	0.0000	0.0000	0.0000
81	FLL2	0.0579	-0.5550	0.0569	0.0000	0.0000	0.0000	0.0000	0.0000
81	FLL3	0.0441	-0.5096	-0.1937	0.0000	0.0000	0.0000	0.0000	0.0000
81	FLL4	-0.0106	-0.0873	-0.0495	0.0000	0.0000	0.0000	0.0000	0.0000
81	FLL5	-0.0121	0.0047	0.0205	0.0000	0.0000	0.0000	0.0000	0.0000
81	FLL6	0.0382	-0.3705	0.2415	0.0000	0.0000	0.0000	0.0000	0.0000
81	FLL7	0.0792	-0.7702	-0.1668	0.0000	0.0000	0.0000	0.0000	0.0000
81	FLL8	0.0104	-0.3021	-0.1401	0.0000	0.0000	0.0000	0.0000	0.0000
81	FLL9	-0.0149	-0.0467	-0.0135	0.0000	0.0000	0.0000	0.0000	0.0000
82	Selfweight	0.0737	-1.6217	0.0935	0.0000	0.0000	0.0000	0.0000	0.0000
82	SuperDC	2.4153	-17.2813	-0.5069	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL1	0.1132	-1.5979	0.7993	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL2	0.4119	-3.2833	-0.0655	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL3	0.9452	-5.1900	0.0910	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL4	0.7255	-4.4658	-0.3149	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL5	0.6384	-4.3300	-0.0525	0.0000	0.0000	0.0000	0.0000	0.0000
82	LL6	-0.1243	-0.0126	0.1724	0.0000	0.0000	0.0000	0.0000	0.0000
82	Eq4	-0.0387	-1.5531	-6.5216	0.9157	2.5692	0.1525	-0.1803	1.0183
82	FLL1	-0.0158	-0.0739	0.0853	0.0000	0.0000	0.0000	0.0000	0.0000
82	FLL2	0.1329	-0.6969	0.0558	0.0000	0.0000	0.0000	0.0000	0.0000
82	FLL3	0.1426	-0.6907	-0.1502	0.0000	0.0000	0.0000	0.0000	0.0000
82	FLL4	-0.0125	-0.1071	-0.0852	0.0000	0.0000	0.0000	0.0000	0.0000
82	FLL5	-0.0230	-0.0023	0.0319	0.0000	0.0000	0.0000	0.0000	0.0000
82	FLL6	0.0390	-0.3881	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000
82	FLL7	0.2243	-1.0327	-0.0857	0.0000	0.0000	0.0000	0.0000	0.0000
82	FLL8	0.0520	-0.3940	-0.1664	0.0000	0.0000	0.0000	0.0000	0.0000
82	FLL9	-0.0228	-0.0617	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000
83	Selfweight	0.2477	-1.6584	-0.2185	0.0000	0.0000	0.0000	0.0000	0.0000
83	SuperDC	2.8278	-16.3544	-0.3239	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL1	0.1062	-1.4182	0.6709	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL2	0.4327	-3.0339	-0.3692	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL3	0.7711	-4.6049	0.4847	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL4	0.6931	-4.0947	-0.2706	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL5	0.6622	-4.0154	0.0098	0.0000	0.0000	0.0000	0.0000	0.0000
83	LL6	0.0131	-0.1843	0.1306	0.0000	0.0000	0.0000	0.0000	0.0000
83	Eq4	-1.1312	3.5503	-3.8023	1.0837	2.2844	0.0525	0.1417	0.7075
83	FLL1	0.0052	-0.0802	0.0625	0.0000	0.0000	0.0000	0.0000	0.0000
83	FLL2	0.0909	-0.6012	0.1154	0.0000	0.0000	0.0000	0.0000	0.0000
83	FLL3	0.1160	-0.6189	-0.1176	0.0000	0.0000	0.0000	0.0000	0.0000
83	FLL4	0.0244	-0.1430	-0.1545	0.0000	0.0000	0.0000	0.0000	0.0000
83	FLL5	0.0024	-0.0341	0.0242	0.0000	0.0000	0.0000	0.0000	0.0000
83	FLL6	0.0341	-0.3440	0.1360	0.0000	0.0000	0.0000	0.0000	0.0000
83	FLL7	0.1599	-0.8976	0.0265	0.0000	0.0000	0.0000	0.0000	0.0000
83	FLL8	0.0719	-0.3903	-0.2303	0.0000	0.0000	0.0000	0.0000	0.0000
83	FLL9	0.0133	-0.1117	-0.0687	0.0000	0.0000	0.0000	0.0000	0.0000
84	Selfweight	-0.0062	-0.7889	-0.7950	0.0000	0.0000	0.0000	0.0000	0.0000
84	SuperDC	-0.7293	-7.8182	-4.3634	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL1	-0.1856	-0.6203	0.2769	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
84	LL2	-0.0485	-1.4583	-1.5025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL3	-0.0996	-1.8803	0.3550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL4	-0.0176	-1.8580	-1.0829	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL5	-0.2072	-1.8594	-0.8074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL6	-0.1211	-0.1911	-0.1934	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	Eq4	-0.7295	5.0379	4.1223	0.2021	1.8297	-0.1105	0.1226	0.4763	0.0000
84	FLL1	-0.0195	-0.0615	-0.0184	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	FLL2	-0.0207	-0.2184	0.1513	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	FLL3	0.0188	-0.2580	-0.1732	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	FLL4	0.0116	-0.1142	-0.3614	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	FLL5	-0.0224	-0.0354	-0.0358	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	FLL6	-0.0360	-0.1471	0.0671	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	FLL7	0.0026	-0.3301	0.0983	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	FLL8	0.0239	-0.2157	-0.4594	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	FLL9	0.0039	-0.0903	-0.2224	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	Selfweight	-0.2694	0.0111	0.1479	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	SuperDC	-1.1268	-4.6767	-1.4614	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL1	-0.3220	-0.0062	0.2058	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL2	0.2022	-1.3572	-0.6457	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL3	-0.3727	-0.2342	0.6636	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL4	0.0241	-1.0715	-0.3323	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL5	-0.2288	-1.1707	-0.0633	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	LL6	-0.3097	0.0258	-0.2760	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	Eq4	-0.3972	-0.6730	7.5737	-0.3197	1.6873	0.1000	-0.0179	0.4536	0.0000
85	FLL1	-0.0356	-0.0143	-0.0521	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	FLL2	-0.0684	0.0287	0.1803	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	FLL3	0.0489	-0.1832	-0.0073	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	FLL4	0.0558	-0.2032	-0.2489	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	FLL5	-0.0573	0.0048	-0.0511	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	FLL6	-0.0687	0.0017	0.0553	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	FLL7	-0.0353	-0.0348	0.2094	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	FLL8	0.1086	-0.3281	-0.2485	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
85	FLL9	-0.0264	-0.0593	-0.1996	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	Selfweight	0.0308	-0.9326	0.8934	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	SuperDC	0.8631	-10.9499	7.7144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL1	-0.0935	-0.1508	0.0870	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL2	0.6669	-2.4515	2.3284	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL3	0.2126	-0.9695	1.1888	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL4	0.5510	-2.2269	2.0873	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL5	0.3427	-2.4379	2.1671	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	LL6	-0.3873	-0.4536	-0.4019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	Eq4	1.3753	-9.2065	5.5865	0.1782	1.6421	0.1623	-0.0568	0.3547	0.0000
86	FLL1	-0.0169	0.0062	-0.0512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	FLL2	0.0047	-0.0653	0.1267	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	FLL3	0.1270	-0.3850	0.4289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	FLL4	0.0584	-0.3849	0.2265	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	FLL5	-0.0717	-0.0840	-0.0744	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	FLL6	-0.0166	-0.0341	0.0273	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
86	FLL7	0.0682	-0.2219	0.3265	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
86	FLL8	0.1602	-0.5742	0.5011	0.0000	0.0000	0.0000	0.0000	0.0000
86	FLL9	-0.0436	-0.2362	-0.0216	0.0000	0.0000	0.0000	0.0000	0.0000
87	Selfweight	0.0707	-1.4619	0.1181	0.0000	0.0000	0.0000	0.0000	0.0000
87	SuperDC	-0.6945	-10.9478	0.7920	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL1	-0.0135	-0.0658	-0.1653	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL2	0.0247	-1.5294	1.7232	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL3	0.0721	-0.6808	0.4750	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL4	0.0397	-1.6444	1.2310	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL5	-0.1294	-1.8688	1.0283	0.0000	0.0000	0.0000	0.0000	0.0000
87	LL6	-0.2174	-1.3634	-1.4154	0.0000	0.0000	0.0000	0.0000	0.0000
87	Eq4	1.2088	-7.1923	-4.7628	0.8781	2.1688	-0.0491	-0.2528	0.9272
87	FLL1	0.0054	0.0216	-0.0438	0.0000	0.0000	0.0000	0.0000	0.0000
87	FLL2	0.0008	-0.0631	0.0142	0.0000	0.0000	0.0000	0.0000	0.0000
87	FLL3	0.0098	-0.2573	0.3128	0.0000	0.0000	0.0000	0.0000	0.0000
87	FLL4	-0.0211	-0.4018	0.0618	0.0000	0.0000	0.0000	0.0000	0.0000
87	FLL5	-0.0403	-0.2525	-0.2621	0.0000	0.0000	0.0000	0.0000	0.0000
87	FLL6	-0.0009	-0.0178	-0.0309	0.0000	0.0000	0.0000	0.0000	0.0000
87	FLL7	0.0084	-0.1774	0.1612	0.0000	0.0000	0.0000	0.0000	0.0000
87	FLL8	-0.0008	-0.4203	0.3697	0.0000	0.0000	0.0000	0.0000	0.0000
87	FLL9	-0.0343	-0.5159	-0.2727	0.0000	0.0000	0.0000	0.0000	0.0000
88	Selfweight	0.0140	-1.4605	-0.0484	0.0000	0.0000	0.0000	0.0000	0.0000
88	SuperDC	0.4366	-13.7965	-2.7157	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL1	-0.0620	0.0477	-0.0940	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL2	-0.3258	-0.8100	0.9410	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL3	-0.1579	-0.2742	0.2948	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL4	-0.1978	-1.2333	0.5334	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL5	-0.1732	-1.8640	0.2987	0.0000	0.0000	0.0000	0.0000	0.0000
88	LL6	0.3931	-2.6121	-1.7240	0.0000	0.0000	0.0000	0.0000	0.0000
88	Eq4	-1.5817	3.4070	-5.4307	0.7915	2.2038	0.2083	0.2261	0.9506
88	FLL1	0.0076	0.0163	-0.0262	0.0000	0.0000	0.0000	0.0000	0.0000
88	FLL2	-0.0242	-0.0169	0.0128	0.0000	0.0000	0.0000	0.0000	0.0000
88	FLL3	-0.0541	-0.1335	0.1793	0.0000	0.0000	0.0000	0.0000	0.0000
88	FLL4	0.0218	-0.5120	-0.0896	0.0000	0.0000	0.0000	0.0000	0.0000
88	FLL5	0.0728	-0.4837	-0.3193	0.0000	0.0000	0.0000	0.0000	0.0000
88	FLL6	-0.0126	0.0072	-0.0170	0.0000	0.0000	0.0000	0.0000	0.0000
88	FLL7	-0.0448	-0.0811	0.0986	0.0000	0.0000	0.0000	0.0000	0.0000
88	FLL8	-0.0428	-0.3441	0.1576	0.0000	0.0000	0.0000	0.0000	0.0000
88	FLL9	0.1328	-0.8359	-0.2735	0.0000	0.0000	0.0000	0.0000	0.0000
89	Selfweight	0.0630	-1.0253	-0.8122	0.0000	0.0000	0.0000	0.0000	0.0000
89	SuperDC	1.7015	-12.3529	-4.3392	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL1	-0.0445	-0.0689	-0.1239	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL2	-0.2489	-0.5383	0.1421	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL3	-0.1282	-0.3218	-0.1226	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL4	-0.0639	-0.9895	0.0164	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL5	-0.0767	-1.6812	-0.8632	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL6	0.6888	-2.3291	-1.2567	0.0000	0.0000	0.0000	0.0000	0.0000
89	Eq4	-0.2253	4.9346	2.8714	0.2149	1.7121	-0.0644	0.0686	0.4511
89	FLL1	0.0104	-0.0060	-0.0239	0.0000	0.0000	0.0000	0.0000	0.0000
89	FLL2	-0.0227	-0.0287	-0.0168	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
89	FLL3	-0.0468	-0.0782	0.0353	0.0000	0.0000	0.0000	0.0000	0.0000
89	FLL4	0.0851	-0.4208	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
89	FLL5	0.1276	-0.4313	-0.2327	0.0000	0.0000	0.0000	0.0000	0.0000
89	FLL6	-0.0091	-0.0170	-0.0266	0.0000	0.0000	0.0000	0.0000	0.0000
89	FLL7	-0.0418	-0.0626	0.0043	0.0000	0.0000	0.0000	0.0000	0.0000
89	FLL8	-0.0081	-0.2423	0.0455	0.0000	0.0000	0.0000	0.0000	0.0000
89	FLL9	0.1282	-0.5894	0.0342	0.0000	0.0000	0.0000	0.0000	0.0000
90	Selfweight	-0.2958	0.0149	-0.4717	0.0000	0.0000	0.0000	0.0000	0.0000
90	SuperDC	-2.5547	-2.6481	-1.4054	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL1	-0.0832	-0.0804	-0.2292	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL2	-0.3892	-0.0743	-0.0240	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL3	-0.2454	-0.1421	-0.3684	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL4	-0.3395	-0.2237	0.1162	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL5	-0.7476	-0.3071	-1.0733	0.0000	0.0000	0.0000	0.0000	0.0000
90	LL6	0.0283	-0.4977	-0.2582	0.0000	0.0000	0.0000	0.0000	0.0000
90	Eq4	0.1807	1.0455	6.7832	-0.2058	1.4580	-0.0416	0.2653	0.2092
90	FLL1	0.0075	-0.0109	-0.0363	0.0000	0.0000	0.0000	0.0000	0.0000
90	FLL2	-0.0362	-0.0177	-0.0442	0.0000	0.0000	0.0000	0.0000	0.0000
90	FLL3	-0.0670	-0.0049	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000
90	FLL4	-0.0271	-0.0912	0.2343	0.0000	0.0000	0.0000	0.0000	0.0000
90	FLL5	0.0052	-0.0922	-0.0478	0.0000	0.0000	0.0000	0.0000	0.0000
90	FLL6	-0.0181	-0.0176	-0.0501	0.0000	0.0000	0.0000	0.0000	0.0000
90	FLL7	-0.0636	-0.0169	-0.0335	0.0000	0.0000	0.0000	0.0000	0.0000
90	FLL8	-0.0689	-0.0345	0.1160	0.0000	0.0000	0.0000	0.0000	0.0000
90	FLL9	-0.0458	-0.0292	0.2406	0.0000	0.0000	0.0000	0.0000	0.0000
91	Selfweight	-0.2958	0.0149	0.4717	0.0000	0.0000	0.0000	0.0000	0.0000
91	SuperDC	-2.5538	-2.6483	1.4151	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL1	-0.1063	-0.0130	-0.2307	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL2	-0.3490	-0.0413	0.0665	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL3	-0.2567	-0.0278	-0.3396	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL4	-0.3338	-0.0306	0.2544	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL5	-0.6959	-0.5977	-0.5791	0.0000	0.0000	0.0000	0.0000	0.0000
91	LL6	0.0283	-0.4977	0.2582	0.0000	0.0000	0.0000	0.0000	0.0000
91	Eq4	-0.9596	-1.8648	7.2171	-0.2058	1.4580	0.0416	-0.2653	0.2092
91	FLL1	0.0038	0.0013	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
91	FLL2	-0.0391	-0.0051	-0.0422	0.0000	0.0000	0.0000	0.0000	0.0000
91	FLL3	-0.0577	-0.0071	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000
91	FLL4	-0.0362	0.0006	0.2937	0.0000	0.0000	0.0000	0.0000	0.0000
91	FLL5	0.0052	-0.0922	0.0478	0.0000	0.0000	0.0000	0.0000	0.0000
91	FLL6	-0.0229	-0.0027	-0.0503	0.0000	0.0000	0.0000	0.0000	0.0000
91	FLL7	-0.0613	-0.0078	-0.0251	0.0000	0.0000	0.0000	0.0000	0.0000
91	FLL8	-0.0611	-0.0054	0.1546	0.0000	0.0000	0.0000	0.0000	0.0000
91	FLL9	-0.0281	-0.0120	0.2851	0.0000	0.0000	0.0000	0.0000	0.0000
92	Selfweight	0.0630	-1.0253	0.8122	0.0000	0.0000	0.0000	0.0000	0.0000
92	SuperDC	1.6988	-12.3497	4.3474	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL1	-0.0479	0.0516	-0.2079	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL2	-0.1274	-0.1517	-0.0780	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL3	-0.0914	0.0388	-0.3497	0.0000	0.0000	0.0000	0.0000	0.0000
92	LL4	-0.0910	-0.1705	0.0675	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)		In-Plane Shear Fxy (kips/ft)		Moment Mxx (kips-ft/ft)		Moment Myy (kips-ft/ft)		Torsion Mxy (kips-ft/ft)		Shear Qx (kips/ft)		Shear Qy (kips/ft)	
92	LL5	0.2233	-2.5935	0.2547	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	LL6	0.6888	-2.3291	1.2567	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	Eq4	0.7597	-8.7353	4.2038	0.2149	1.7121	0.0644	-0.0686	0.4511								
92	FLL1	0.0053	0.0170	-0.0291	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	FLL2	-0.0188	0.0016	-0.0436	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	FLL3	-0.0222	-0.0294	-0.0072	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	FLL4	0.0042	-0.0901	0.2092	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	FLL5	0.1276	-0.4313	0.2327	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	FLL6	-0.0099	0.0114	-0.0454	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	FLL7	-0.0270	-0.0137	-0.0388	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	FLL8	-0.0144	-0.0687	0.0936	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
92	FLL9	0.0730	-0.2589	0.2865	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	Selfweight	0.0140	-1.4605	0.0484	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	SuperDC	0.4299	-13.7952	2.7295	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	LL1	-0.0139	0.0867	-0.1394	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	LL2	-0.0675	-0.0019	-0.2665	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	LL3	-0.0241	0.1429	-0.2931	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	LL4	-0.0270	-0.0467	-0.1870	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	LL5	-0.0535	-2.9220	0.1556	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	LL6	0.3931	-2.6121	1.7240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	Eq4	1.7253	-7.6451	-4.5957	0.7915	2.2038	-0.2083	-0.2261	0.9506								
93	FLL1	0.0070	0.0162	-0.0074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	FLL2	-0.0090	0.0152	-0.0406	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	FLL3	-0.0133	-0.0039	-0.0428	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	FLL4	0.0073	-0.0900	0.0615	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	FLL5	0.0728	-0.4837	0.3193	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	FLL6	-0.0025	0.0192	-0.0303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	FLL7	-0.0144	0.0102	-0.0547	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	FLL8	-0.0075	-0.0463	-0.0054	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
93	FLL9	0.0331	-0.2814	0.1943	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	Selfweight	0.0707	-1.4619	-0.1181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	SuperDC	-0.6956	-10.9706	-0.7812	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	LL1	0.0101	0.0648	-0.0773	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	LL2	-0.0712	0.1126	-0.1503	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	LL3	0.0170	0.1220	-0.1567	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	LL4	-0.0478	0.0542	-0.0915	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	LL5	-0.1495	-2.5313	-0.6375	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	LL6	-0.2174	-1.3634	1.4154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	Eq4	-1.4073	3.8169	-5.0044	0.8781	2.1688	0.0491	0.2528	0.9272								
94	FLL1	0.0123	0.0005	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	FLL2	-0.0053	0.0201	-0.0238	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	FLL3	-0.0149	0.0190	-0.0249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	FLL4	-0.0239	-0.0407	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	FLL5	-0.0403	-0.2525	0.2621	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	FLL6	0.0028	0.0138	-0.0166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	FLL7	-0.0124	0.0262	-0.0321	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	FLL8	-0.0231	-0.0041	-0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
94	FLL9	-0.0359	-0.1409	0.1440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
95	Selfweight	0.0308	-0.9326	-0.8934	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
95	SuperDC	0.8618	-10.9749	-7.7411	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL1	0.0211	0.0120	-0.0436	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL2	-0.0585	-0.0315	-0.1321	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL3	0.0366	-0.0162	-0.1293	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL4	-0.0434	-0.0839	-0.1478	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL5	0.3489	-2.6612	-2.2125	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL6	-0.3873	-0.4536	0.4019	0.0000	0.0000	0.0000	0.0000	0.0000
95	Eq4	-1.0983	5.8128	3.2062	0.1782	1.6421	-0.1623	0.0568	0.3547
95	FLL1	0.0129	-0.0049	-0.0074	0.0000	0.0000	0.0000	0.0000	0.0000
95	FLL2	-0.0023	0.0051	-0.0112	0.0000	0.0000	0.0000	0.0000	0.0000
95	FLL3	-0.0129	-0.0036	-0.0199	0.0000	0.0000	0.0000	0.0000	0.0000
95	FLL4	-0.0319	-0.0383	-0.0098	0.0000	0.0000	0.0000	0.0000	0.0000
95	FLL5	-0.0717	-0.0840	0.0744	0.0000	0.0000	0.0000	0.0000	0.0000
95	FLL6	0.0052	0.0019	-0.0101	0.0000	0.0000	0.0000	0.0000	0.0000
95	FLL7	-0.0089	0.0028	-0.0187	0.0000	0.0000	0.0000	0.0000	0.0000
95	FLL8	-0.0254	-0.0219	-0.0215	0.0000	0.0000	0.0000	0.0000	0.0000
95	FLL9	-0.0577	-0.0694	0.0239	0.0000	0.0000	0.0000	0.0000	0.0000
96	Selfweight	-0.2694	0.0111	-0.1479	0.0000	0.0000	0.0000	0.0000	0.0000
96	SuperDC	-1.1409	-4.6734	1.4226	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL1	0.0188	-0.0069	-0.0565	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL2	-0.0817	-0.0607	-0.2317	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL3	0.0188	-0.0331	-0.1966	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL4	-0.0795	-0.0680	-0.2738	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL5	-0.1275	-1.0949	0.1136	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL6	-0.3097	0.0258	0.2760	0.0000	0.0000	0.0000	0.0000	0.0000
96	Eq4	0.0454	-0.7834	8.0408	-0.3197	1.6873	-0.1000	0.0179	0.4536
96	FLL1	0.0113	0.0005	-0.0101	0.0000	0.0000	0.0000	0.0000	0.0000
96	FLL2	-0.0027	-0.0036	-0.0157	0.0000	0.0000	0.0000	0.0000	0.0000
96	FLL3	-0.0162	-0.0101	-0.0355	0.0000	0.0000	0.0000	0.0000	0.0000
96	FLL4	-0.0420	-0.0161	-0.0391	0.0000	0.0000	0.0000	0.0000	0.0000
96	FLL5	-0.0573	0.0048	0.0511	0.0000	0.0000	0.0000	0.0000	0.0000
96	FLL6	0.0045	-0.0016	-0.0135	0.0000	0.0000	0.0000	0.0000	0.0000
96	FLL7	-0.0107	-0.0079	-0.0298	0.0000	0.0000	0.0000	0.0000	0.0000
96	FLL8	-0.0331	-0.0161	-0.0488	0.0000	0.0000	0.0000	0.0000	0.0000
96	FLL9	-0.0605	-0.0117	-0.0115	0.0000	0.0000	0.0000	0.0000	0.0000
97	Selfweight	-0.0062	-0.7889	0.7950	0.0000	0.0000	0.0000	0.0000	0.0000
97	SuperDC	-0.7428	-7.8306	4.3319	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL1	0.0056	0.0264	-0.0433	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL2	-0.0846	0.0445	-0.2127	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL3	-0.0070	0.0769	-0.1587	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL4	-0.0800	0.0658	-0.2441	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL5	-0.1194	-1.8231	0.9660	0.0000	0.0000	0.0000	0.0000	0.0000
97	LL6	-0.1211	-0.1911	0.1934	0.0000	0.0000	0.0000	0.0000	0.0000
97	Eq4	0.5065	-7.4910	5.4799	0.2021	1.8297	0.1105	-0.1226	0.4763
97	FLL1	0.0081	0.0092	-0.0053	0.0000	0.0000	0.0000	0.0000	0.0000
97	FLL2	-0.0047	0.0035	-0.0141	0.0000	0.0000	0.0000	0.0000	0.0000
97	FLL3	-0.0159	0.0050	-0.0336	0.0000	0.0000	0.0000	0.0000	0.0000
97	FLL4	-0.0305	-0.0016	-0.0411	0.0000	0.0000	0.0000	0.0000	0.0000
97	FLL5	-0.0224	-0.0354	0.0358	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
97	FLL6	0.0015	0.0064	-0.0102	0.0000	0.0000	0.0000	0.0000	0.0000
97	FLL7	-0.0121	0.0049	-0.0279	0.0000	0.0000	0.0000	0.0000	0.0000
97	FLL8	-0.0275	0.0039	-0.0479	0.0000	0.0000	0.0000	0.0000	0.0000
97	FLL9	-0.0358	-0.0166	-0.0196	0.0000	0.0000	0.0000	0.0000	0.0000
98	Selfweight	0.2477	-1.6584	0.2185	0.0000	0.0000	0.0000	0.0000	0.0000
98	SuperDC	2.8208	-16.4107	0.2686	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL1	0.0030	0.0323	-0.0038	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL2	-0.0179	0.0938	-0.1416	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL3	0.0085	0.1042	-0.0470	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL4	-0.0069	0.1201	-0.1483	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL5	0.6685	-4.0969	0.1370	0.0000	0.0000	0.0000	0.0000	0.0000
98	LL6	0.0131	-0.1843	-0.1306	0.0000	0.0000	0.0000	0.0000	0.0000
98	Eq4	2.0230	-8.6716	-3.7108	1.0837	2.2844	-0.0525	-0.1417	0.7075
98	FLL1	0.0043	0.0087	0.0067	0.0000	0.0000	0.0000	0.0000	0.0000
98	FLL2	-0.0018	0.0065	-0.0079	0.0000	0.0000	0.0000	0.0000	0.0000
98	FLL3	-0.0041	0.0132	-0.0249	0.0000	0.0000	0.0000	0.0000	0.0000
98	FLL4	-0.0047	0.0107	-0.0443	0.0000	0.0000	0.0000	0.0000	0.0000
98	FLL5	0.0024	-0.0341	-0.0242	0.0000	0.0000	0.0000	0.0000	0.0000
98	FLL6	0.0009	0.0078	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
98	FLL7	-0.0037	0.0114	-0.0191	0.0000	0.0000	0.0000	0.0000	0.0000
98	FLL8	-0.0054	0.0166	-0.0417	0.0000	0.0000	0.0000	0.0000	0.0000
98	FLL9	-0.0030	-0.0055	-0.0483	0.0000	0.0000	0.0000	0.0000	0.0000
99	Selfweight	0.0737	-1.6217	-0.0935	0.0000	0.0000	0.0000	0.0000	0.0000
99	SuperDC	2.4165	-17.3573	0.4251	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL1	0.0120	0.0131	0.0062	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL2	-0.0226	0.0870	-0.1177	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL3	0.0244	0.0558	-0.0146	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL4	-0.0130	0.1000	-0.1142	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL5	0.6907	-4.4529	0.1539	0.0000	0.0000	0.0000	0.0000	0.0000
99	LL6	-0.1243	-0.0126	-0.1724	0.0000	0.0000	0.0000	0.0000	0.0000
99	Eq4	0.7969	-3.8615	-6.3679	0.9157	2.5692	-0.1525	0.1803	1.0183
99	FLL1	0.0070	0.0008	0.0102	0.0000	0.0000	0.0000	0.0000	0.0000
99	FLL2	-0.0009	0.0052	-0.0064	0.0000	0.0000	0.0000	0.0000	0.0000
99	FLL3	-0.0055	0.0140	-0.0219	0.0000	0.0000	0.0000	0.0000	0.0000
99	FLL4	-0.0145	0.0209	-0.0421	0.0000	0.0000	0.0000	0.0000	0.0000
99	FLL5	-0.0230	-0.0023	-0.0319	0.0000	0.0000	0.0000	0.0000	0.0000
99	FLL6	0.0030	0.0031	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
99	FLL7	-0.0038	0.0111	-0.0165	0.0000	0.0000	0.0000	0.0000	0.0000
99	FLL8	-0.0112	0.0218	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
99	FLL9	-0.0223	0.0168	-0.0497	0.0000	0.0000	0.0000	0.0000	0.0000
100	Selfweight	0.1759	-1.6061	-0.4261	0.0000	0.0000	0.0000	0.0000	0.0000
100	SuperDC	1.2256	-14.2552	0.2322	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL1	0.0137	-0.0022	0.0042	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL2	-0.0043	0.0754	-0.0707	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL3	0.0385	0.0070	-0.0079	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL4	0.0153	0.0637	-0.0686	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL5	0.2871	-3.5479	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
100	LL6	-0.0651	0.0252	-0.1105	0.0000	0.0000	0.0000	0.0000	0.0000
100	Eq4	-1.3841	3.4587	-3.3883	0.8141	2.2608	-0.0489	0.2963	0.6607



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
100	FLL1	0.0083	-0.0079	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000
100	FLL2	-0.0006	0.0053	-0.0038	0.0000	0.0000	0.0000	0.0000	0.0000
100	FLL3	-0.0028	0.0144	-0.0132	0.0000	0.0000	0.0000	0.0000	0.0000
100	FLL4	-0.0068	0.0223	-0.0257	0.0000	0.0000	0.0000	0.0000	0.0000
100	FLL5	-0.0121	0.0047	-0.0205	0.0000	0.0000	0.0000	0.0000	0.0000
100	FLL6	0.0035	-0.0008	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000
100	FLL7	-0.0024	0.0119	-0.0099	0.0000	0.0000	0.0000	0.0000	0.0000
100	FLL8	-0.0052	0.0222	-0.0230	0.0000	0.0000	0.0000	0.0000	0.0000
100	FLL9	-0.0111	0.0211	-0.0307	0.0000	0.0000	0.0000	0.0000	0.0000
101	Selfweight	0.1221	-0.9241	-1.0379	0.0000	0.0000	0.0000	0.0000	0.0000
101	SuperDC	-0.6712	-7.6223	-6.5310	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL1	0.0139	-0.0055	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL2	0.0044	0.0265	-0.0242	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL3	0.0388	-0.0197	-0.0277	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL4	0.0202	0.0020	-0.0488	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL5	-0.1491	-1.6836	-1.3860	0.0000	0.0000	0.0000	0.0000	0.0000
101	LL6	-0.0840	-0.0601	-0.1397	0.0000	0.0000	0.0000	0.0000	0.0000
101	Eq4	-1.2395	6.1059	4.7036	0.1780	1.8007	-0.0614	0.1530	0.4913
101	FLL1	0.0070	-0.0083	-0.0043	0.0000	0.0000	0.0000	0.0000	0.0000
101	FLL2	0.0003	0.0034	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
101	FLL3	-0.0011	0.0065	-0.0028	0.0000	0.0000	0.0000	0.0000	0.0000
101	FLL4	-0.0055	0.0051	-0.0132	0.0000	0.0000	0.0000	0.0000	0.0000
101	FLL5	-0.0156	-0.0111	-0.0259	0.0000	0.0000	0.0000	0.0000	0.0000
101	FLL6	0.0035	-0.0017	-0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
101	FLL7	-0.0007	0.0065	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
101	FLL8	-0.0031	0.0074	-0.0090	0.0000	0.0000	0.0000	0.0000	0.0000
101	FLL9	-0.0114	-0.0003	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000
102	Selfweight	-0.0831	0.0316	-0.5145	0.0000	0.0000	0.0000	0.0000	0.0000
102	SuperDC	0.0331	-5.2603	-5.0363	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL1	0.0145	0.0004	-0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL2	0.0085	-0.0069	-0.0241	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL3	0.0395	-0.0060	-0.0359	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL4	0.0220	-0.0151	-0.0623	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL5	0.1456	-1.0993	-0.9715	0.0000	0.0000	0.0000	0.0000	0.0000
102	LL6	-0.1038	-0.0659	-0.2305	0.0000	0.0000	0.0000	0.0000	0.0000
102	Eq4	-1.3976	0.8925	7.3535	-0.4502	1.4727	0.0743	0.1636	0.2256
102	FLL1	0.0064	-0.0011	-0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
102	FLL2	0.0008	0.0005	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
102	FLL3	-0.0002	-0.0008	-0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
102	FLL4	-0.0054	-0.0053	-0.0178	0.0000	0.0000	0.0000	0.0000	0.0000
102	FLL5	-0.0192	-0.0122	-0.0427	0.0000	0.0000	0.0000	0.0000	0.0000
102	FLL6	0.0036	0.0000	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
102	FLL7	0.0002	0.0001	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000
102	FLL8	-0.0025	-0.0033	-0.0108	0.0000	0.0000	0.0000	0.0000	0.0000
102	FLL9	-0.0129	-0.0098	-0.0334	0.0000	0.0000	0.0000	0.0000	0.0000
103	Selfweight	-0.0509	-0.0255	0.4647	0.0000	0.0000	0.0000	0.0000	0.0000
103	SuperDC	0.5417	-6.2119	5.5642	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL1	0.0142	0.0062	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL2	0.0017	0.0008	-0.0287	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
103	LL3	0.0358	0.0202	-0.0376	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL4	0.0130	0.0130	-0.0673	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL5	0.4128	-1.3417	1.3322	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	LL6	-0.1195	-0.0047	-0.2349	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	Eq4	-1.3417	-4.7459	8.9010	-0.3524	1.5291	0.0048	-0.3064	0.3119	0.0000
103	FLL1	0.0064	0.0042	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	FLL2	0.0006	-0.0005	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	FLL3	-0.0013	-0.0010	-0.0028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	FLL4	-0.0081	-0.0011	-0.0193	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	FLL5	-0.0221	-0.0009	-0.0435	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	FLL6	0.0035	0.0016	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	FLL7	-0.0005	-0.0011	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	FLL8	-0.0046	-0.0011	-0.0121	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
103	FLL9	-0.0164	-0.0013	-0.0350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	Selfweight	0.1870	-0.8864	0.8515	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	SuperDC	-0.2901	-7.7256	6.9058	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL1	0.0067	0.0147	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL2	-0.0020	0.0175	-0.0192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL3	0.0164	0.0556	-0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL4	0.0036	0.0527	-0.0405	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL5	0.1932	-1.2730	1.8496	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	LL6	-0.0571	0.0449	-0.2118	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	Eq4	-0.0930	-10.3808	5.2405	0.4867	1.8439	0.0167	-0.1693	0.5531	0.0000
104	FLL1	0.0032	0.0102	-0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	FLL2	0.0001	-0.0009	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	FLL3	-0.0012	0.0002	-0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	FLL4	-0.0046	0.0046	-0.0167	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	FLL5	-0.0106	0.0083	-0.0392	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	FLL6	0.0016	0.0040	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	FLL7	-0.0007	-0.0012	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	FLL8	-0.0030	0.0030	-0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
104	FLL9	-0.0085	0.0074	-0.0310	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	Selfweight	0.1592	-1.2941	0.3792	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	SuperDC	0.0298	-11.2320	-0.2913	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL1	0.0023	0.0068	0.0196	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL2	-0.0018	0.0154	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL3	0.0046	0.0329	0.0490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL4	-0.0013	0.0404	0.0163	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL5	0.0545	-1.1429	0.6893	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	LL6	-0.0303	0.0855	-0.1663	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	Eq4	0.7020	-7.2172	-5.5400	0.7225	2.3844	-0.2045	-0.3354	0.8521	0.0000
105	FLL1	0.0009	0.0060	0.0089	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	FLL2	0.0001	-0.0009	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	FLL3	-0.0005	0.0009	-0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	FLL4	-0.0024	0.0074	-0.0116	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	FLL5	-0.0056	0.0158	-0.0308	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	FLL6	0.0006	0.0020	0.0048	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	FLL7	-0.0002	-0.0007	-0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
105	FLL8	-0.0016	0.0047	-0.0069	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force		Membrane Force	In-Plane Shear	Moment Mxx	Moment Myy	Torsion Mxy	Shear Qx	Shear Qy
		Fxx	Fyy	Fxy	Fxy	(kips-ft/ft)	(kips-ft/ft)	(kips-ft/ft)	(kips/ft)	(kips/ft)
105	FLL9	-0.0045	0.0131	-0.0232	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	Selfweight	0.0660	-1.1601	0.2151	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	SuperDC	1.6401	-14.4932	-1.2778	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL1	0.0060	-0.0111	0.0178	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL2	0.0028	0.0013	0.0054	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL3	0.0183	-0.0263	0.0499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL4	0.0119	-0.0058	0.0263	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL5	-0.0071	-0.8404	0.1909	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	LL6	-0.0200	0.1080	-0.1038	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	Eq4	-1.9157	0.5019	-7.1311	0.3327	2.7942	0.0120	0.0158	0.8117	0.0000
106	FLL1	0.0034	-0.0048	0.0091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	FLL2	-0.0001	-0.0005	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	FLL3	-0.0004	0.0014	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	FLL4	-0.0013	0.0078	-0.0069	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	FLL5	-0.0037	0.0200	-0.0192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	FLL6	0.0015	-0.0027	0.0045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	FLL7	-0.0004	0.0005	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	FLL8	-0.0008	0.0046	-0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
106	FLL9	-0.0027	0.0152	-0.0142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	Selfweight	0.1127	-1.0823	0.0461	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	SuperDC	2.6957	-15.6245	-0.6548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL1	0.0054	-0.0171	0.0091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL2	0.0030	-0.0045	0.0028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL3	0.0167	-0.0473	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL4	0.0112	-0.0239	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL5	0.0483	-0.6973	0.0810	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	LL6	-0.0179	0.1048	-0.0531	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	Eq4	-1.5465	2.4552	-4.1809	0.4531	2.7309	-0.0439	0.0640	0.6440	0.0000
107	FLL1	0.0030	-0.0086	0.0046	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	FLL2	0.0000	-0.0003	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	FLL3	-0.0003	0.0015	-0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	FLL4	-0.0010	0.0070	-0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	FLL5	-0.0033	0.0194	-0.0098	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	FLL6	0.0014	-0.0043	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	FLL7	-0.0003	0.0009	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	FLL8	-0.0006	0.0041	-0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
107	FLL9	-0.0023	0.0144	-0.0072	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	Selfweight	0.0450	-0.9363	-0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	SuperDC	0.9132	-15.1264	-0.1062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL1	0.0013	-0.0176	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL2	0.0006	-0.0070	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL3	0.0038	-0.0513	0.0089	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL4	0.0024	-0.0301	0.0045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL5	0.0263	-0.5219	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	LL6	-0.0051	0.0845	-0.0192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	Eq4	-0.3447	1.5917	-1.6865	0.2080	2.8818	-0.1630	0.0452	0.6987	0.0000
108	FLL1	0.0007	-0.0094	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	FLL2	0.0000	-0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	FLL3	-0.0001	0.0013	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)		In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
108	FLL4	-0.0003	0.0054	-0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	FLL5	-0.0009	0.0157	-0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	FLL6	0.0003	-0.0045	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	FLL7	-0.0001	0.0010	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	FLL8	-0.0002	0.0031	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
108	FLL9	-0.0007	0.0114	-0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	Selfweight	-0.0012	-0.6422	-0.0268	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	SuperDC	2.5089	-14.8086	-2.5043	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL1	0.1396	-1.2062	-0.2834	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL2	0.0946	-0.7831	-0.1702	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL3	0.7004	-4.3183	-0.7713	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL4	0.5377	-3.2441	-0.5610	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL5	0.5387	-3.2277	-0.5532	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	LL6	0.0020	0.0474	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	Eq4	0.0630	-3.6941	-2.5010	0.0244	1.9643	0.0341	0.0079	0.6240	0.0000	0.0000
109	FLL1	0.1189	-0.7238	-0.1292	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	FLL2	-0.0048	-0.0239	-0.0136	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	FLL3	-0.0009	0.0201	0.0086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	FLL4	0.0003	0.0194	0.0089	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	FLL5	0.0004	0.0088	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	FLL6	0.0425	-0.3236	-0.0700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	FLL7	-0.0031	0.0038	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	FLL8	-0.0001	0.0265	0.0118	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
109	FLL9	0.0005	0.0171	0.0079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	Selfweight	-0.0027	-0.7032	-0.0804	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	SuperDC	4.2163	-19.2747	-0.4135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL1	0.1991	-1.6783	-0.3665	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL2	0.1358	-1.1608	-0.1967	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL3	1.1619	-5.6461	-0.2838	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL4	0.8971	-4.2600	-0.1450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL5	0.9003	-4.2373	-0.1249	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	LL6	0.0076	0.0597	0.0558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	Eq4	-0.0037	-5.6864	-4.4533	0.0842	1.9278	-0.0184	-0.0756	0.6624	0.0000	0.0000
110	FLL1	0.1984	-0.9289	-0.0443	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	FLL2	-0.0132	-0.0578	-0.0428	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	FLL3	-0.0005	0.0127	0.0187	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	FLL4	0.0021	0.0210	0.0215	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	FLL5	0.0014	0.0111	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	FLL6	0.0648	-0.4404	-0.0725	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	FLL7	-0.0068	-0.0186	-0.0062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	FLL8	0.0016	0.0242	0.0276	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
110	FLL9	0.0022	0.0197	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	Selfweight	-0.0144	-0.7704	-0.1801	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	SuperDC	3.0244	-16.3366	3.4292	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL1	0.0741	-1.5434	-0.3341	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL2	0.0649	-1.1191	-0.1581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL3	0.7890	-4.8347	0.6844	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL4	0.6283	-3.6534	0.6368	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
111	LL5	0.6368	-3.6280	0.6726	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
111	LL6	0.0220	0.0605	0.0952	0.0000	0.0000	0.0000	0.0000	0.0000
111	Eq4	-2.0414	-4.5494	-5.0279	0.2325	1.8189	-0.0652	-0.0621	0.6810
111	FLL1	0.1364	-0.7781	0.1274	0.0000	0.0000	0.0000	0.0000	0.0000
111	FLL2	-0.0187	-0.0771	-0.0772	0.0000	0.0000	0.0000	0.0000	0.0000
111	FLL3	0.0032	-0.0005	0.0227	0.0000	0.0000	0.0000	0.0000	0.0000
111	FLL4	0.0073	0.0175	0.0341	0.0000	0.0000	0.0000	0.0000	0.0000
111	FLL5	0.0041	0.0112	0.0176	0.0000	0.0000	0.0000	0.0000	0.0000
111	FLL6	0.0331	-0.3953	-0.0421	0.0000	0.0000	0.0000	0.0000	0.0000
111	FLL7	-0.0073	-0.0394	-0.0213	0.0000	0.0000	0.0000	0.0000	0.0000
111	FLL8	0.0079	0.0148	0.0403	0.0000	0.0000	0.0000	0.0000	0.0000
111	FLL9	0.0071	0.0181	0.0318	0.0000	0.0000	0.0000	0.0000	0.0000
112	Selfweight	-0.0662	-0.8298	-0.4293	0.0000	0.0000	0.0000	0.0000	0.0000
112	SuperDC	-0.6586	-8.2645	1.9787	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL1	-0.7285	-0.9628	-1.0822	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL2	-0.5240	-0.7967	-0.7845	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL3	-0.4378	-2.5362	0.0159	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL4	-0.2669	-1.9310	0.1614	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL5	-0.2445	-1.9049	0.2254	0.0000	0.0000	0.0000	0.0000	0.0000
112	LL6	0.0601	0.0514	0.1565	0.0000	0.0000	0.0000	0.0000	0.0000
112	Eq4	-5.0205	0.7828	-3.2627	0.5802	1.5342	-0.1208	0.2631	0.7203
112	FLL1	-0.0484	-0.3726	0.0657	0.0000	0.0000	0.0000	0.0000	0.0000
112	FLL2	-0.1014	-0.0887	-0.1940	0.0000	0.0000	0.0000	0.0000	0.0000
112	FLL3	0.0116	-0.0262	0.0079	0.0000	0.0000	0.0000	0.0000	0.0000
112	FLL4	0.0208	0.0077	0.0479	0.0000	0.0000	0.0000	0.0000	0.0000
112	FLL5	0.0111	0.0095	0.0290	0.0000	0.0000	0.0000	0.0000	0.0000
112	FLL6	-0.1397	-0.2333	-0.1902	0.0000	0.0000	0.0000	0.0000	0.0000
112	FLL7	-0.0372	-0.0682	-0.0908	0.0000	0.0000	0.0000	0.0000	0.0000
112	FLL8	0.0235	-0.0061	0.0451	0.0000	0.0000	0.0000	0.0000	0.0000
112	FLL9	0.0198	0.0118	0.0482	0.0000	0.0000	0.0000	0.0000	0.0000
113	Selfweight	-0.2850	-0.5799	-0.6895	0.0000	0.0000	0.0000	0.0000	0.0000
113	SuperDC	-2.9564	-4.4891	-6.6459	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL1	-1.5347	-1.1997	-2.8331	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL2	-1.1667	-1.0641	-2.3205	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL3	-1.3255	-1.5207	-2.7913	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL4	-0.9069	-1.1769	-1.9990	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL5	-0.8612	-1.1618	-1.9044	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL6	0.1133	0.0256	0.2101	0.0000	0.0000	0.0000	0.0000	0.0000
113	Eq4	-7.0517	4.5139	2.0302	0.3732	1.2689	-0.0120	0.0218	0.5584
113	FLL1	-0.1572	-0.1840	-0.3005	0.0000	0.0000	0.0000	0.0000	0.0000
113	FLL2	-0.2103	-0.1631	-0.4155	0.0000	0.0000	0.0000	0.0000	0.0000
113	FLL3	0.0062	-0.0295	-0.0388	0.0000	0.0000	0.0000	0.0000	0.0000
113	FLL4	0.0346	-0.0007	0.0503	0.0000	0.0000	0.0000	0.0000	0.0000
113	FLL5	0.0210	0.0047	0.0389	0.0000	0.0000	0.0000	0.0000	0.0000
113	FLL6	-0.3040	-0.2486	-0.5680	0.0000	0.0000	0.0000	0.0000	0.0000
113	FLL7	-0.0930	-0.0976	-0.2324	0.0000	0.0000	0.0000	0.0000	0.0000
113	FLL8	0.0326	-0.0150	0.0242	0.0000	0.0000	0.0000	0.0000	0.0000
113	FLL9	0.0348	0.0036	0.0576	0.0000	0.0000	0.0000	0.0000	0.0000
114	Selfweight	-0.5678	-0.1375	-0.3575	0.0000	0.0000	0.0000	0.0000	0.0000
114	SuperDC	-0.6916	-10.3105	-7.0062	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
114	LL1	-1.0602	-3.7394	-2.4465	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL2	-0.8492	-3.0862	-2.0684	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL3	-0.7683	-3.5315	-2.8604	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL4	-0.4631	-2.6994	-2.0713	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL5	-0.3802	-2.7056	-1.9678	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL6	0.1843	-0.0070	0.2250	0.0000	0.0000	0.0000	0.0000	0.0000
114	Eq4	-4.3560	1.2699	5.9866	-0.4402	1.1837	-0.0626	0.0869	0.4528
114	FLL1	-0.0343	-0.4665	-0.3002	0.0000	0.0000	0.0000	0.0000	0.0000
114	FLL2	-0.1933	-0.4657	-0.3745	0.0000	0.0000	0.0000	0.0000	0.0000
114	FLL3	-0.0278	0.0015	-0.0652	0.0000	0.0000	0.0000	0.0000	0.0000
114	FLL4	0.0455	-0.0015	0.0480	0.0000	0.0000	0.0000	0.0000	0.0000
114	FLL5	0.0341	-0.0013	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000
114	FLL6	-0.2051	-0.7474	-0.5009	0.0000	0.0000	0.0000	0.0000	0.0000
114	FLL7	-0.1290	-0.1837	-0.2444	0.0000	0.0000	0.0000	0.0000	0.0000
114	FLL8	0.0255	-0.0008	0.0095	0.0000	0.0000	0.0000	0.0000	0.0000
114	FLL9	0.0512	-0.0016	0.0589	0.0000	0.0000	0.0000	0.0000	0.0000
115	Selfweight	-0.5588	-0.1073	0.4366	0.0000	0.0000	0.0000	0.0000	0.0000
115	SuperDC	-1.1328	-9.2356	6.6751	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL1	-1.1295	-3.4303	2.2734	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL2	-0.9908	-2.7823	1.8829	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL3	-1.0912	-3.0758	1.8472	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL4	-0.6858	-2.3683	1.5162	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL5	-0.5561	-2.3866	1.6027	0.0000	0.0000	0.0000	0.0000	0.0000
115	LL6	0.2731	-0.0411	0.1965	0.0000	0.0000	0.0000	0.0000	0.0000
115	Eq4	-2.2718	-3.0910	8.9637	-0.5155	1.1838	-0.0283	-0.0337	0.4434
115	FLL1	-0.0278	-0.4383	0.2919	0.0000	0.0000	0.0000	0.0000	0.0000
115	FLL2	-0.2443	-0.3994	0.2390	0.0000	0.0000	0.0000	0.0000	0.0000
115	FLL3	-0.0734	0.0302	-0.0362	0.0000	0.0000	0.0000	0.0000	0.0000
115	FLL4	0.0598	-0.0096	0.0435	0.0000	0.0000	0.0000	0.0000	0.0000
115	FLL5	0.0506	-0.0076	0.0364	0.0000	0.0000	0.0000	0.0000	0.0000
115	FLL6	-0.2240	-0.6824	0.4478	0.0000	0.0000	0.0000	0.0000	0.0000
115	FLL7	-0.2074	-0.1199	0.0369	0.0000	0.0000	0.0000	0.0000	0.0000
115	FLL8	0.0161	0.0046	0.0183	0.0000	0.0000	0.0000	0.0000	0.0000
115	FLL9	0.0718	-0.0112	0.0524	0.0000	0.0000	0.0000	0.0000	0.0000
116	Selfweight	-0.1959	-0.6086	0.8610	0.0000	0.0000	0.0000	0.0000	0.0000
116	SuperDC	-3.0849	-4.2942	5.5966	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL1	-1.4668	-0.8263	2.5988	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL2	-1.4528	-0.9772	1.9191	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL3	-1.9221	-1.2348	1.7780	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL4	-1.2976	-1.0656	1.3491	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL5	-1.1246	-1.0415	1.4256	0.0000	0.0000	0.0000	0.0000	0.0000
116	LL6	0.3603	-0.0260	0.1236	0.0000	0.0000	0.0000	0.0000	0.0000
116	Eq4	-0.2152	-4.9212	5.8944	0.2075	1.2563	0.0723	-0.0278	0.5551
116	FLL1	-0.0406	-0.1018	0.3221	0.0000	0.0000	0.0000	0.0000	0.0000
116	FLL2	-0.3692	-0.1498	0.2506	0.0000	0.0000	0.0000	0.0000	0.0000
116	FLL3	-0.1653	-0.0835	-0.0977	0.0000	0.0000	0.0000	0.0000	0.0000
116	FLL4	0.0755	-0.0312	0.0107	0.0000	0.0000	0.0000	0.0000	0.0000
116	FLL5	0.0667	-0.0048	0.0229	0.0000	0.0000	0.0000	0.0000	0.0000
116	FLL6	-0.3013	-0.1736	0.5056	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
116	FLL7	-0.3718	-0.1401	-0.0148	0.0000	0.0000	0.0000	0.0000	0.0000
116	FLL8	-0.0102	-0.0658	-0.0370	0.0000	0.0000	0.0000	0.0000	0.0000
116	FLL9	0.0930	-0.0215	0.0237	0.0000	0.0000	0.0000	0.0000	0.0000
117	Selfweight	0.1033	-1.0138	0.4417	0.0000	0.0000	0.0000	0.0000	0.0000
117	SuperDC	1.4161	-12.5579	-2.9795	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL1	-0.3946	-0.9857	0.9881	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL2	-0.4012	-2.1864	-0.0709	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL3	-0.4709	-3.8059	-0.7497	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL4	-0.1817	-3.2025	-0.8367	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL5	0.0264	-3.1262	-0.6822	0.0000	0.0000	0.0000	0.0000	0.0000
117	LL6	0.3983	0.0042	0.1098	0.0000	0.0000	0.0000	0.0000	0.0000
117	Eq4	-0.2745	-4.1970	-2.6893	0.6327	1.4025	0.2199	-0.1867	0.5872
117	FLL1	0.0720	-0.0421	0.1355	0.0000	0.0000	0.0000	0.0000	0.0000
117	FLL2	-0.1685	-0.5014	-0.0638	0.0000	0.0000	0.0000	0.0000	0.0000
117	FLL3	-0.0882	-0.5102	-0.2900	0.0000	0.0000	0.0000	0.0000	0.0000
117	FLL4	0.0768	-0.0579	-0.0510	0.0000	0.0000	0.0000	0.0000	0.0000
117	FLL5	0.0738	0.0008	0.0203	0.0000	0.0000	0.0000	0.0000	0.0000
117	FLL6	-0.0785	-0.2520	0.1652	0.0000	0.0000	0.0000	0.0000	0.0000
117	FLL7	-0.1976	-0.7711	-0.3292	0.0000	0.0000	0.0000	0.0000	0.0000
117	FLL8	0.0197	-0.2689	-0.1807	0.0000	0.0000	0.0000	0.0000	0.0000
117	FLL9	0.0978	-0.0312	-0.0138	0.0000	0.0000	0.0000	0.0000	0.0000
118	Selfweight	0.1735	-1.0609	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000
118	SuperDC	5.6859	-19.9795	-1.2316	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL1	0.3587	-1.5484	0.6858	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL2	0.4717	-3.3881	-0.1664	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL3	0.8534	-6.1919	-0.0998	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL4	0.8573	-5.0977	-0.4522	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL5	1.1161	-5.0131	-0.2265	0.0000	0.0000	0.0000	0.0000	0.0000
118	LL6	0.4462	-0.0143	0.1180	0.0000	0.0000	0.0000	0.0000	0.0000
118	Eq4	-0.7891	-2.2261	-4.9182	0.7473	1.5056	0.0962	0.0851	0.8461
118	FLL1	0.1412	-0.0486	0.0743	0.0000	0.0000	0.0000	0.0000	0.0000
118	FLL2	0.0143	-0.8312	0.0288	0.0000	0.0000	0.0000	0.0000	0.0000
118	FLL3	0.0193	-0.8275	-0.1613	0.0000	0.0000	0.0000	0.0000	0.0000
118	FLL4	0.0819	-0.0666	-0.0863	0.0000	0.0000	0.0000	0.0000	0.0000
118	FLL5	0.0826	-0.0026	0.0219	0.0000	0.0000	0.0000	0.0000	0.0000
118	FLL6	0.0839	-0.4006	0.1245	0.0000	0.0000	0.0000	0.0000	0.0000
118	FLL7	0.0032	-1.2797	-0.1132	0.0000	0.0000	0.0000	0.0000	0.0000
118	FLL8	0.0662	-0.4034	-0.1679	0.0000	0.0000	0.0000	0.0000	0.0000
118	FLL9	0.1041	-0.0424	-0.0367	0.0000	0.0000	0.0000	0.0000	0.0000
119	Selfweight	0.1556	-1.0242	-0.2681	0.0000	0.0000	0.0000	0.0000	0.0000
119	SuperDC	3.3460	-16.3528	1.5980	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL1	0.2808	-1.3178	0.7518	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL2	-0.0369	-2.7018	0.0236	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL3	0.3586	-5.0616	1.0329	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL4	0.2601	-4.1222	0.2504	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL5	0.5442	-4.0713	0.5223	0.0000	0.0000	0.0000	0.0000	0.0000
119	LL6	0.4639	-0.0956	0.0737	0.0000	0.0000	0.0000	0.0000	0.0000
119	Eq4	-2.3954	-0.0988	-2.6827	0.6161	1.4235	-0.1316	0.2792	0.6931
119	FLL1	0.1360	-0.0519	0.0563	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
119	FLL2	-0.0361	-0.6785	0.1869	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
119	FLL3	-0.0814	-0.6542	-0.0195	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
119	FLL4	0.0323	-0.0521	-0.1387	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
119	FLL5	0.0859	-0.0177	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
119	FLL6	0.0616	-0.3376	0.1606	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
119	FLL7	-0.0976	-1.0305	0.1532	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
119	FLL8	-0.0342	-0.3085	-0.1651	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
119	FLL9	0.0912	-0.0490	-0.0666	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	Selfweight	-0.1172	-0.5325	-0.5938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	SuperDC	-2.2689	-5.9347	-2.0264	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL1	0.1816	-0.4736	0.3827	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL2	-1.2427	-0.9967	-1.0851	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL3	-0.7021	-1.6906	0.8085	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL4	-1.1457	-1.4524	-0.5649	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL5	-0.7755	-1.4536	-0.2732	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	LL6	0.4116	-0.0864	-0.1097	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	Eq4	-3.2947	2.3744	3.9399	0.2224	1.3220	-0.1228	0.0228	0.6084	0.0000
120	FLL1	0.1348	-0.0327	-0.0082	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	FLL2	-0.1394	-0.2146	0.1994	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	FLL3	-0.3256	-0.2170	-0.0947	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	FLL4	-0.1151	-0.0406	-0.3140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	FLL5	0.0762	-0.0160	-0.0203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	FLL6	0.0271	-0.1185	0.0942	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	FLL7	-0.3264	-0.3247	0.1837	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	FLL8	-0.2963	-0.1246	-0.3811	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
120	FLL9	-0.0014	-0.0386	-0.1936	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	Selfweight	-0.3425	-0.1357	0.1173	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	SuperDC	-1.7686	-8.0831	-3.8644	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL1	0.2826	0.0168	0.1118	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL2	-1.0267	-2.3504	-1.2345	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL3	-0.3945	-0.4335	0.1991	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL4	-0.9576	-1.8925	-0.9367	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL5	-0.4736	-1.9571	-0.6987	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	LL6	0.1939	-0.0083	-0.2201	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	Eq4	-0.9267	-0.9283	6.7205	-0.3383	1.2494	0.0965	-0.0209	0.5584	0.0000
121	FLL1	0.1147	-0.0100	-0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	FLL2	-0.0759	0.0370	0.1269	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	FLL3	-0.2680	-0.3314	-0.1172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	FLL4	-0.1578	-0.3680	-0.2991	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	FLL5	0.0359	-0.0015	-0.0408	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	FLL6	0.0506	0.0076	0.0315	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	FLL7	-0.2333	-0.0850	0.1049	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	FLL8	-0.2888	-0.5777	-0.3613	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
121	FLL9	-0.0647	-0.1339	-0.1908	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	Selfweight	-0.0294	-0.5963	0.6909	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	SuperDC	1.1733	-11.5967	8.6286	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL1	0.5013	-0.0698	0.0209	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL2	-0.3311	-3.0411	2.5389	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL3	0.5968	-0.9702	1.1094	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
122	LL4	-0.1184	-2.6353	2.2475	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL5	0.4576	-2.7364	2.3098	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	LL6	-0.0563	-0.1729	-0.3112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	Eq4	2.2948	-6.2932	4.5870	0.0501	1.2167	0.1070	0.0618	0.5077	0.0000
122	FLL1	0.0952	0.0040	-0.0537	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	FLL2	0.0721	-0.0314	0.1025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	FLL3	-0.0963	-0.4681	0.4562	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	FLL4	-0.1764	-0.4571	0.2934	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	FLL5	-0.0104	-0.0320	-0.0576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	FLL6	0.1080	-0.0158	0.0122	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	FLL7	0.0070	-0.2201	0.3128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	FLL8	-0.2028	-0.7243	0.5755	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
122	FLL9	-0.2003	-0.2081	0.0242	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	Selfweight	0.2029	-0.9466	0.2474	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	SuperDC	-2.1234	-6.3611	1.7199	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL1	0.4816	-0.0357	-0.1104	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL2	-0.5533	-0.8309	1.8800	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL3	0.5465	-0.3826	0.6411	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL4	-0.4494	-0.9191	1.4090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL5	0.0762	-1.0597	1.2432	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL6	-0.6867	-0.8330	-1.3659	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	Eq4	1.2158	-3.9496	-2.7022	0.7813	1.3064	0.1463	-0.2627	0.6829	0.0000
123	FLL1	0.0797	0.0127	-0.0422	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	FLL2	0.0839	-0.0367	0.0360	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	FLL3	-0.1149	-0.1413	0.3412	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	FLL4	-0.3200	-0.2324	0.0747	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	FLL5	-0.1272	-0.1543	-0.2530	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	FLL6	0.1043	-0.0099	-0.0181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	FLL7	0.0158	-0.1003	0.1954	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	FLL8	-0.2941	-0.2334	0.3948	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
123	FLL9	-0.2885	-0.3633	-0.2941	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	Selfweight	0.2225	-0.9437	-0.1704	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	SuperDC	2.0567	-12.4804	-6.2049	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL1	0.4473	0.0216	-0.1011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL2	0.0763	-0.3773	0.6627	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL3	0.7497	-0.1291	0.1818	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL4	0.2225	-0.8956	0.1762	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL5	0.7847	-1.3940	-0.2438	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL6	-0.3184	-2.6573	-2.2636	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	Eq4	-1.3943	1.4646	-4.5667	0.6271	1.3587	0.0665	0.1833	0.6890	0.0000
124	FLL1	0.0704	0.0095	-0.0252	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	FLL2	0.0916	-0.0116	0.0057	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	FLL3	-0.0088	-0.0570	0.1358	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	FLL4	-0.1385	-0.4854	-0.2091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	FLL5	-0.0590	-0.4921	-0.4192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	FLL6	0.0987	0.0029	-0.0191	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	FLL7	0.0724	-0.0405	0.0725	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	FLL8	-0.1053	-0.2496	0.0633	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
124	FLL9	-0.1479	-0.9648	-0.4311	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
125	Selfweight	0.0262	-0.6459	-0.6382	0.0000	0.0000	0.0000	0.0000	0.0000
125	SuperDC	1.9471	-13.9457	-2.1082	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL1	0.4022	-0.0331	-0.1101	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL2	0.4632	-0.3557	0.1672	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL3	0.8079	-0.1705	-0.0829	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL4	0.4978	-0.9886	0.1095	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL5	0.8813	-1.4849	-0.4969	0.0000	0.0000	0.0000	0.0000	0.0000
125	LL6	-0.7072	-2.9465	-0.7976	0.0000	0.0000	0.0000	0.0000	0.0000
125	Eq4	-1.8329	1.4829	1.9141	-0.0072	1.2223	-0.0716	0.0289	0.4894
125	FLL1	0.0607	-0.0029	-0.0219	0.0000	0.0000	0.0000	0.0000	0.0000
125	FLL2	0.0876	-0.0148	-0.0123	0.0000	0.0000	0.0000	0.0000	0.0000
125	FLL3	0.0570	-0.0426	0.0385	0.0000	0.0000	0.0000	0.0000	0.0000
125	FLL4	-0.1042	-0.5523	0.0454	0.0000	0.0000	0.0000	0.0000	0.0000
125	FLL5	-0.1310	-0.5456	-0.1477	0.0000	0.0000	0.0000	0.0000	0.0000
125	FLL6	0.0893	-0.0084	-0.0232	0.0000	0.0000	0.0000	0.0000	0.0000
125	FLL7	0.0980	-0.0335	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000
125	FLL8	-0.0135	-0.2615	0.0645	0.0000	0.0000	0.0000	0.0000	0.0000
125	FLL9	-0.1843	-0.7615	0.1882	0.0000	0.0000	0.0000	0.0000	0.0000
126	Selfweight	-0.3018	-0.1335	-0.3319	0.0000	0.0000	0.0000	0.0000	0.0000
126	SuperDC	-3.9009	-3.3114	1.1895	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL1	0.3322	-0.0494	-0.1865	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL2	0.4238	-0.0833	0.0213	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL3	0.7010	-0.0944	-0.2980	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL4	0.3466	-0.2800	0.2328	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL5	-0.2365	-0.2801	-0.6271	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL6	-2.0159	-0.6750	0.2353	0.0000	0.0000	0.0000	0.0000	0.0000
126	Eq4	-0.9239	0.1058	7.2716	-0.1323	1.1247	-0.1501	0.1505	0.3841
126	FLL1	0.0484	-0.0066	-0.0304	0.0000	0.0000	0.0000	0.0000	0.0000
126	FLL2	0.0761	-0.0112	-0.0357	0.0000	0.0000	0.0000	0.0000	0.0000
126	FLL3	0.0587	-0.0062	0.0068	0.0000	0.0000	0.0000	0.0000	0.0000
126	FLL4	-0.1659	-0.1482	0.2814	0.0000	0.0000	0.0000	0.0000	0.0000
126	FLL5	-0.3733	-0.1250	0.0436	0.0000	0.0000	0.0000	0.0000	0.0000
126	FLL6	0.0741	-0.0109	-0.0409	0.0000	0.0000	0.0000	0.0000	0.0000
126	FLL7	0.0905	-0.0121	-0.0257	0.0000	0.0000	0.0000	0.0000	0.0000
126	FLL8	-0.0325	-0.0616	0.1349	0.0000	0.0000	0.0000	0.0000	0.0000
126	FLL9	-0.4361	-0.0257	0.2557	0.0000	0.0000	0.0000	0.0000	0.0000
127	Selfweight	-0.3018	-0.1335	0.3319	0.0000	0.0000	0.0000	0.0000	0.0000
127	SuperDC	-3.8992	-3.3111	-1.1810	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL1	0.2503	-0.0117	-0.2175	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL2	0.4677	-0.0233	-0.0227	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL3	0.5950	-0.0237	-0.3502	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL4	0.3248	0.0071	0.1300	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL5	-0.2190	-0.8115	-1.0202	0.0000	0.0000	0.0000	0.0000	0.0000
127	LL6	-2.0159	-0.6750	-0.2353	0.0000	0.0000	0.0000	0.0000	0.0000
127	Eq4	-0.2247	-1.1275	6.9052	-0.1323	1.1247	0.1501	-0.1505	0.3841
127	FLL1	0.0348	0.0007	-0.0341	0.0000	0.0000	0.0000	0.0000	0.0000
127	FLL2	0.0617	-0.0043	-0.0422	0.0000	0.0000	0.0000	0.0000	0.0000
127	FLL3	0.0719	-0.0048	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000
127	FLL4	-0.1621	0.0217	0.2375	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
127	FLL5	-0.3733	-0.1250	-0.0436	0.0000	0.0000	0.0000	0.0000	0.0000
127	FLL6	0.0563	-0.0025	-0.0476	0.0000	0.0000	0.0000	0.0000	0.0000
127	FLL7	0.0850	-0.0061	-0.0324	0.0000	0.0000	0.0000	0.0000	0.0000
127	FLL8	-0.0102	0.0054	0.1156	0.0000	0.0000	0.0000	0.0000	0.0000
127	FLL9	-0.2427	-0.0130	0.1723	0.0000	0.0000	0.0000	0.0000	0.0000
128	Selfweight	0.0262	-0.6459	0.6382	0.0000	0.0000	0.0000	0.0000	0.0000
128	SuperDC	1.9510	-13.9436	2.1177	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL1	0.1743	0.0296	-0.2044	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL2	0.5315	-0.0689	-0.1272	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL3	0.4933	0.0286	-0.3581	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL4	0.5558	-0.0648	-0.0188	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL5	0.4981	-3.0530	-0.1180	0.0000	0.0000	0.0000	0.0000	0.0000
128	LL6	-0.7072	-2.9465	0.7976	0.0000	0.0000	0.0000	0.0000	0.0000
128	Eq4	2.4840	-5.7736	2.5600	-0.0072	1.2223	0.0716	-0.0289	0.4894
128	FLL1	0.0214	0.0093	-0.0262	0.0000	0.0000	0.0000	0.0000	0.0000
128	FLL2	0.0490	0.0016	-0.0453	0.0000	0.0000	0.0000	0.0000	0.0000
128	FLL3	0.0823	-0.0141	-0.0152	0.0000	0.0000	0.0000	0.0000	0.0000
128	FLL4	0.0278	-0.0358	0.1644	0.0000	0.0000	0.0000	0.0000	0.0000
128	FLL5	-0.1310	-0.5456	0.1477	0.0000	0.0000	0.0000	0.0000	0.0000
128	FLL6	0.0398	0.0066	-0.0447	0.0000	0.0000	0.0000	0.0000	0.0000
128	FLL7	0.0801	-0.0059	-0.0444	0.0000	0.0000	0.0000	0.0000	0.0000
128	FLL8	0.0822	-0.0302	0.0677	0.0000	0.0000	0.0000	0.0000	0.0000
128	FLL9	-0.0440	-0.2639	0.2328	0.0000	0.0000	0.0000	0.0000	0.0000
129	Selfweight	0.2225	-0.9437	0.1704	0.0000	0.0000	0.0000	0.0000	0.0000
129	SuperDC	2.0633	-12.4808	6.2176	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL1	0.1182	0.0487	-0.1344	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL2	0.4936	-0.0001	-0.2167	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL3	0.3953	0.0799	-0.2702	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL4	0.5483	-0.0299	-0.1229	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL5	0.3199	-2.6751	0.9136	0.0000	0.0000	0.0000	0.0000	0.0000
129	LL6	-0.3184	-2.6573	2.2636	0.0000	0.0000	0.0000	0.0000	0.0000
129	Eq4	2.0772	-5.2996	-2.6564	0.6271	1.3587	-0.0665	-0.1833	0.6890
129	FLL1	0.0146	0.0088	-0.0088	0.0000	0.0000	0.0000	0.0000	0.0000
129	FLL2	0.0364	0.0088	-0.0373	0.0000	0.0000	0.0000	0.0000	0.0000
129	FLL3	0.0776	-0.0018	-0.0345	0.0000	0.0000	0.0000	0.0000	0.0000
129	FLL4	0.0718	-0.0534	0.0835	0.0000	0.0000	0.0000	0.0000	0.0000
129	FLL5	-0.0590	-0.4921	0.4192	0.0000	0.0000	0.0000	0.0000	0.0000
129	FLL6	0.0276	0.0107	-0.0292	0.0000	0.0000	0.0000	0.0000	0.0000
129	FLL7	0.0675	0.0061	-0.0479	0.0000	0.0000	0.0000	0.0000	0.0000
129	FLL8	0.0999	-0.0269	0.0111	0.0000	0.0000	0.0000	0.0000	0.0000
129	FLL9	0.0384	-0.2442	0.2438	0.0000	0.0000	0.0000	0.0000	0.0000
130	Selfweight	0.2029	-0.9466	-0.2474	0.0000	0.0000	0.0000	0.0000	0.0000
130	SuperDC	-2.1112	-6.3735	-1.7142	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL1	0.0848	0.0381	-0.0761	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL2	0.4136	0.0590	-0.1524	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL3	0.3210	0.0700	-0.1595	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL4	0.4947	0.0273	-0.1055	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL5	-0.7678	-1.4654	-0.8511	0.0000	0.0000	0.0000	0.0000	0.0000
130	LL6	-0.6867	-0.8330	1.3659	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)		In-Plane Shear Fxy (kips/ft)		Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
130	Eq4	-1.8216	1.9892	-3.2330	0.7813	1.3064	-0.1463	0.2627	0.0000	0.0000	0.0000	0.6829
130	FLL1	0.0141	0.0008	-0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	FLL2	0.0256	0.0114	-0.0229	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	FLL3	0.0642	0.0098	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	FLL4	0.0869	-0.0243	0.0325	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	FLL5	-0.1272	-0.1543	0.2530	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	FLL6	0.0204	0.0081	-0.0165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	FLL7	0.0519	0.0143	-0.0313	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	FLL8	0.0958	-0.0039	-0.0046	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
130	FLL9	0.0208	-0.0881	0.1373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	Selfweight	-0.0294	-0.5963	-0.6909	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	SuperDC	1.1803	-11.6096	-8.6494	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	LL1	0.0651	0.0079	-0.0419	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	LL2	0.3696	-0.0104	-0.1218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	LL3	0.2737	-0.0044	-0.1190	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	LL4	0.4532	-0.0397	-0.1288	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	LL5	-0.1015	-2.8641	-2.4325	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	LL6	-0.0563	-0.1729	0.3112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	Eq4	-1.8775	2.6960	1.9261	0.0501	1.2167	-0.1070	-0.0618	0.5077			
131	FLL1	0.0120	-0.0027	-0.0061	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	FLL2	0.0203	0.0033	-0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	FLL3	0.0574	-0.0008	-0.0186	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	FLL4	0.0899	-0.0205	-0.0044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	FLL5	-0.0104	-0.0320	0.0576	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	FLL6	0.0160	0.0013	-0.0096	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	FLL7	0.0443	0.0026	-0.0181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	FLL8	0.0917	-0.0108	-0.0179	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
131	FLL9	0.0726	-0.0314	0.0209	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	Selfweight	-0.3425	-0.1357	-0.1173	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	SuperDC	-1.7827	-8.0814	3.8323	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	LL1	0.0362	-0.0035	-0.0472	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	LL2	0.2656	-0.0365	-0.1972	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	LL3	0.1797	-0.0190	-0.1672	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	LL4	0.3325	-0.0413	-0.2360	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	LL5	-0.9821	-1.9678	0.7510	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	LL6	0.1939	-0.0083	0.2201	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	Eq4	0.4307	-1.5822	7.9349	-0.3383	1.2494	-0.0965	0.0209	0.5584			
132	FLL1	0.0068	0.0004	-0.0089	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	FLL2	0.0126	-0.0020	-0.0129	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	FLL3	0.0417	-0.0061	-0.0301	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	FLL4	0.0762	-0.0103	-0.0352	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	FLL5	0.0359	-0.0015	0.0408	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	FLL6	0.0092	-0.0008	-0.0113	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	FLL7	0.0304	-0.0047	-0.0250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	FLL8	0.0717	-0.0100	-0.0424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
132	FLL9	0.0802	-0.0096	-0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
133	Selfweight	-0.1172	-0.5325	0.5938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
133	SuperDC	-2.3048	-5.9424	1.9960	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
133	LL1	0.0038	0.0133	-0.0362	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
133	LL2	0.1472	0.0210	-0.2054	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL3	0.0742	0.0393	-0.1416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL4	0.1958	0.0330	-0.2347	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL5	-1.2458	-1.4256	0.4279	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	LL6	0.4116	-0.0864	0.1097	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	Eq4	2.6492	-4.2362	4.5670	0.2224	1.3220	0.1228	-0.0228	0.6084	0.0000
133	FLL1	0.0013	0.0050	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	FLL2	0.0038	0.0015	-0.0130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	FLL3	0.0236	0.0022	-0.0329	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	FLL4	0.0603	-0.0009	-0.0441	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	FLL5	0.0762	-0.0160	0.0203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	FLL6	0.0015	0.0033	-0.0086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	FLL7	0.0146	0.0021	-0.0267	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	FLL8	0.0489	0.0016	-0.0487	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
133	FLL9	0.0841	-0.0076	-0.0290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	Selfweight	0.1556	-1.0242	0.2681	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	SuperDC	3.2989	-16.3885	-1.6550	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL1	-0.0089	0.0171	-0.0083	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL2	0.0817	0.0541	-0.1471	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL3	0.0272	0.0562	-0.0580	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL4	0.1217	0.0681	-0.1553	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL5	0.1341	-4.1081	-0.3796	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	LL6	0.4639	-0.0956	-0.0737	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	Eq4	3.5017	-5.0254	-3.1904	0.6161	1.4235	0.1316	-0.2792	0.6931	0.0000
134	FLL1	0.0000	0.0043	0.0055	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	FLL2	-0.0005	0.0037	-0.0086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	FLL3	0.0131	0.0078	-0.0255	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	FLL4	0.0476	0.0071	-0.0428	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	FLL5	0.0859	-0.0177	-0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	FLL6	-0.0015	0.0041	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	FLL7	0.0059	0.0067	-0.0199	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	FLL8	0.0340	0.0101	-0.0415	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
134	FLL9	0.0773	-0.0015	-0.0423	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	Selfweight	0.1735	-1.0609	-0.0400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	SuperDC	5.6365	-20.0239	1.1558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL1	-0.0077	0.0084	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL2	0.0709	0.0554	-0.1091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL3	0.0279	0.0350	-0.0251	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL4	0.1124	0.0628	-0.1091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL5	0.7072	-5.0787	0.3120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	LL6	0.4462	-0.0143	-0.1180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	Eq4	2.6292	-4.0333	-4.5381	0.7473	1.5056	-0.0962	-0.0851	0.8461	0.0000
135	FLL1	0.0014	0.0004	0.0074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	FLL2	-0.0012	0.0034	-0.0061	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	FLL3	0.0110	0.0090	-0.0198	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	FLL4	0.0435	0.0130	-0.0359	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	FLL5	0.0826	-0.0026	-0.0219	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	FLL6	-0.0011	0.0020	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
135	FLL7	0.0042	0.0072	-0.0151	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
135	FLL8	0.0303	0.0137	-0.0333	0.0000	0.0000	0.0000	0.0000	0.0000
135	FLL9	0.0725	0.0099	-0.0401	0.0000	0.0000	0.0000	0.0000	0.0000
136	Selfweight	0.1033	-1.0138	-0.4417	0.0000	0.0000	0.0000	0.0000	0.0000
136	SuperDC	1.3168	-12.5871	2.8589	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL1	-0.0053	-0.0001	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL2	0.0512	0.0427	-0.0686	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL3	0.0282	0.0068	-0.0116	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL4	0.0933	0.0369	-0.0693	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL5	-0.3372	-3.1641	0.7476	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL6	0.3983	0.0042	-0.1098	0.0000	0.0000	0.0000	0.0000	0.0000
136	Eq4	0.7660	0.2553	-1.7760	0.6327	1.4025	-0.2199	0.1867	0.5872
136	FLL1	0.0035	-0.0040	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000
136	FLL2	-0.0021	0.0030	-0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
136	FLL3	0.0073	0.0080	-0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
136	FLL4	0.0353	0.0119	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000
136	FLL5	0.0738	0.0008	-0.0203	0.0000	0.0000	0.0000	0.0000	0.0000
136	FLL6	-0.0006	-0.0002	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
136	FLL7	0.0016	0.0067	-0.0093	0.0000	0.0000	0.0000	0.0000	0.0000
136	FLL8	0.0234	0.0122	-0.0221	0.0000	0.0000	0.0000	0.0000	0.0000
136	FLL9	0.0616	0.0105	-0.0299	0.0000	0.0000	0.0000	0.0000	0.0000
137	Selfweight	-0.1959	-0.6086	-0.8610	0.0000	0.0000	0.0000	0.0000	0.0000
137	SuperDC	-3.2630	-4.3455	-5.8201	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL1	-0.0058	-0.0034	-0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL2	0.0371	0.0159	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL3	0.0208	-0.0112	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL4	0.0744	0.0025	-0.0443	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL5	-1.4252	-0.9760	-1.2671	0.0000	0.0000	0.0000	0.0000	0.0000
137	LL6	0.3603	-0.0260	-0.1236	0.0000	0.0000	0.0000	0.0000	0.0000
137	Eq4	-0.7270	3.5465	4.0696	0.2075	1.2563	-0.0723	0.0278	0.5551
137	FLL1	0.0033	-0.0047	-0.0029	0.0000	0.0000	0.0000	0.0000	0.0000
137	FLL2	-0.0024	0.0019	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
137	FLL3	0.0050	0.0039	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
137	FLL4	0.0295	0.0036	-0.0128	0.0000	0.0000	0.0000	0.0000	0.0000
137	FLL5	0.0667	-0.0048	-0.0229	0.0000	0.0000	0.0000	0.0000	0.0000
137	FLL6	-0.0007	-0.0010	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
137	FLL7	0.0002	0.0037	-0.0011	0.0000	0.0000	0.0000	0.0000	0.0000
137	FLL8	0.0187	0.0046	-0.0091	0.0000	0.0000	0.0000	0.0000	0.0000
137	FLL9	0.0537	0.0010	-0.0207	0.0000	0.0000	0.0000	0.0000	0.0000
138	Selfweight	-0.5588	-0.1073	-0.4366	0.0000	0.0000	0.0000	0.0000	0.0000
138	SuperDC	-1.2872	-9.4942	-6.8578	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL1	-0.0074	0.0002	-0.0037	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL2	0.0255	-0.0037	-0.0198	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL3	0.0053	-0.0039	-0.0339	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL4	0.0478	-0.0090	-0.0546	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL5	-0.8465	-2.0350	-1.4489	0.0000	0.0000	0.0000	0.0000	0.0000
138	LL6	0.2731	-0.0411	-0.1965	0.0000	0.0000	0.0000	0.0000	0.0000
138	Eq4	1.9395	0.0893	6.8023	-0.5155	1.1838	0.0283	0.0337	0.4434
138	FLL1	0.0006	-0.0008	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000
138	FLL2	-0.0017	0.0004	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
138	FLL3	0.0039	-0.0004	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
138	FLL4	0.0222	-0.0031	-0.0148	0.0000	0.0000	0.0000	0.0000	0.0000
138	FLL5	0.0506	-0.0076	-0.0364	0.0000	0.0000	0.0000	0.0000	0.0000
138	FLL6	-0.0014	0.0000	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
138	FLL7	0.0004	0.0002	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
138	FLL8	0.0140	-0.0019	-0.0087	0.0000	0.0000	0.0000	0.0000	0.0000
138	FLL9	0.0406	-0.0059	-0.0281	0.0000	0.0000	0.0000	0.0000	0.0000
139	Selfweight	-0.5678	-0.1375	0.3575	0.0000	0.0000	0.0000	0.0000	0.0000
139	SuperDC	-0.8422	-10.5908	7.1684	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL1	-0.0090	0.0044	-0.0015	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL2	0.0123	0.0002	-0.0235	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL3	-0.0103	0.0137	-0.0297	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL4	0.0197	0.0082	-0.0574	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL5	-0.6653	-2.3260	1.6201	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL6	0.1843	-0.0070	-0.2250	0.0000	0.0000	0.0000	0.0000	0.0000
139	Eq4	4.1581	-4.6115	8.2606	-0.4402	1.1837	0.0626	-0.0869	0.4528
139	FLL1	-0.0020	0.0029	-0.0057	0.0000	0.0000	0.0000	0.0000	0.0000
139	FLL2	-0.0011	-0.0003	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
139	FLL3	0.0024	-0.0007	-0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
139	FLL4	0.0143	-0.0011	-0.0177	0.0000	0.0000	0.0000	0.0000	0.0000
139	FLL5	0.0341	-0.0013	-0.0417	0.0000	0.0000	0.0000	0.0000	0.0000
139	FLL6	-0.0020	0.0011	-0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
139	FLL7	0.0003	-0.0008	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
139	FLL8	0.0088	-0.0009	-0.0108	0.0000	0.0000	0.0000	0.0000	0.0000
139	FLL9	0.0268	-0.0015	-0.0329	0.0000	0.0000	0.0000	0.0000	0.0000
140	Selfweight	-0.2850	-0.5799	0.6895	0.0000	0.0000	0.0000	0.0000	0.0000
140	SuperDC	-3.0993	-4.5403	6.8870	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL1	-0.0110	0.0079	0.0069	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL2	0.0013	0.0091	-0.0160	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL3	-0.0255	0.0298	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL4	-0.0048	0.0282	-0.0311	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL5	-0.8484	-0.8405	1.7820	0.0000	0.0000	0.0000	0.0000	0.0000
140	LL6	0.1133	0.0256	-0.2101	0.0000	0.0000	0.0000	0.0000	0.0000
140	Eq4	6.0921	-5.9763	4.1758	0.3732	1.2689	0.0120	-0.0218	0.5584
140	FLL1	-0.0046	0.0056	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
140	FLL2	-0.0006	-0.0005	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000
140	FLL3	0.0014	0.0000	-0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
140	FLL4	0.0080	0.0025	-0.0163	0.0000	0.0000	0.0000	0.0000	0.0000
140	FLL5	0.0210	0.0047	-0.0389	0.0000	0.0000	0.0000	0.0000	0.0000
140	FLL6	-0.0027	0.0021	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
140	FLL7	0.0004	-0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
140	FLL8	0.0048	0.0016	-0.0100	0.0000	0.0000	0.0000	0.0000	0.0000
140	FLL9	0.0159	0.0041	-0.0305	0.0000	0.0000	0.0000	0.0000	0.0000
141	Selfweight	-0.0662	-0.8298	0.4293	0.0000	0.0000	0.0000	0.0000	0.0000
141	SuperDC	-0.7510	-8.1121	-1.7278	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL1	-0.0081	0.0032	0.0168	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL2	-0.0017	0.0085	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL3	-0.0213	0.0169	0.0404	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL4	-0.0093	0.0219	0.0102	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
141	LL5	-0.3681	-0.5879	0.5814	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	LL6	0.0601	0.0514	-0.1565	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	Eq4	4.8136	-3.5598	-3.9631	0.5802	1.5342	0.1208	-0.2631	0.7203	0.0000
141	FLL1	-0.0038	0.0031	0.0074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	FLL2	-0.0003	-0.0005	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	FLL3	0.0007	0.0006	-0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	FLL4	0.0040	0.0044	-0.0112	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	FLL5	0.0111	0.0095	-0.0290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	FLL6	-0.0020	0.0010	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	FLL7	0.0003	-0.0003	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	FLL8	0.0023	0.0028	-0.0067	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
141	FLL9	0.0082	0.0078	-0.0220	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	Selfweight	-0.0144	-0.7704	0.1801	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	SuperDC	2.9211	-15.9505	-3.2557	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL1	-0.0028	-0.0054	0.0156	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL2	-0.0004	0.0015	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL3	-0.0072	-0.0120	0.0431	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL4	-0.0028	-0.0009	0.0217	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL5	0.0364	-0.7222	0.0901	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	LL6	0.0220	0.0605	-0.0952	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	Eq4	3.0688	-0.9857	-6.1886	0.2325	1.8189	0.0652	0.0621	0.6810	0.0000
142	FLL1	-0.0013	-0.0022	0.0079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	FLL2	-0.0001	-0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	FLL3	0.0003	0.0008	-0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	FLL4	0.0015	0.0044	-0.0064	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	FLL5	0.0041	0.0112	-0.0176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	FLL6	-0.0007	-0.0013	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	FLL7	0.0001	0.0002	-0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	FLL8	0.0009	0.0027	-0.0037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
142	FLL9	0.0030	0.0086	-0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	Selfweight	-0.0027	-0.7032	0.0804	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	SuperDC	4.0833	-18.7880	0.4461	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL1	-0.0004	-0.0094	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL2	0.0003	-0.0022	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL3	-0.0007	-0.0256	0.0315	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL4	0.0005	-0.0124	0.0179	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL5	0.0711	-0.7059	0.1042	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	LL6	0.0076	0.0597	-0.0558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	Eq4	1.4387	-0.8584	-4.3074	0.0842	1.9278	0.0184	0.0756	0.6624	0.0000
143	FLL1	-0.0001	-0.0047	0.0058	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	FLL2	-0.0001	-0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	FLL3	0.0001	0.0008	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	FLL4	0.0006	0.0040	-0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	FLL5	0.0014	0.0111	-0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	FLL6	-0.0001	-0.0023	0.0028	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	FLL7	0.0000	0.0005	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	FLL8	0.0003	0.0024	-0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
143	FLL9	0.0011	0.0082	-0.0076	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	Selfweight	-0.0012	-0.6422	0.0268	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
144	SuperDC	2.4330	-14.4139	2.4474	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL1	0.0001	-0.0107	0.0047	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL2	0.0003	-0.0046	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL3	0.0006	-0.0315	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL4	0.0008	-0.0191	0.0081	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL5	0.0514	-0.4385	0.0912	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL6	0.0020	0.0474	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000
144	Eq4	0.7907	-1.3458	-1.6466	0.0244	1.9643	-0.0341	-0.0079	0.6240
144	FLL1	0.0001	-0.0058	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
144	FLL2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
144	FLL3	0.0000	0.0007	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
144	FLL4	0.0002	0.0030	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
144	FLL5	0.0004	0.0088	-0.0041	0.0000	0.0000	0.0000	0.0000	0.0000
144	FLL6	0.0000	-0.0027	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
144	FLL7	0.0000	0.0006	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
144	FLL8	0.0001	0.0017	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
144	FLL9	0.0003	0.0064	-0.0030	0.0000	0.0000	0.0000	0.0000	0.0000
145	Selfweight	-0.0107	-0.3582	-0.0144	0.0000	0.0000	0.0000	0.0000	0.0000
145	SuperDC	-0.7247	-11.4094	-5.8592	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL1	-0.0890	-0.8274	-0.4398	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL2	-0.0546	-0.5578	-0.2855	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL3	-0.2266	-3.2724	-1.6917	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL4	-0.1642	-2.4836	-1.2763	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL5	-0.1614	-2.4779	-1.2718	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL6	0.0075	0.0170	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000
145	Eq4	-1.6478	-0.6239	-1.3642	-0.1293	1.1234	0.0618	0.0679	0.7573
145	FLL1	-0.0375	-0.5483	-0.2848	0.0000	0.0000	0.0000	0.0000	0.0000
145	FLL2	-0.0051	-0.0065	-0.0040	0.0000	0.0000	0.0000	0.0000	0.0000
145	FLL3	0.0024	0.0083	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
145	FLL4	0.0029	0.0073	0.0059	0.0000	0.0000	0.0000	0.0000	0.0000
145	FLL5	0.0014	0.0031	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
145	FLL6	-0.0216	-0.2297	-0.1210	0.0000	0.0000	0.0000	0.0000	0.0000
145	FLL7	-0.0007	0.0033	0.0034	0.0000	0.0000	0.0000	0.0000	0.0000
145	FLL8	0.0036	0.0103	0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
145	FLL9	0.0026	0.0063	0.0051	0.0000	0.0000	0.0000	0.0000	0.0000
146	Selfweight	-0.0343	-0.3903	-0.0562	0.0000	0.0000	0.0000	0.0000	0.0000
146	SuperDC	6.4144	-27.3617	-3.8241	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL1	0.2887	-1.9350	-0.4320	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL2	0.2306	-1.3585	-0.2510	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL3	1.7474	-7.8167	-1.1843	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL4	1.3684	-5.9630	-0.8567	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL5	1.3768	-5.9532	-0.8433	0.0000	0.0000	0.0000	0.0000	0.0000
146	LL6	0.0229	0.0258	0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
146	Eq4	-4.1423	-5.1448	-3.7288	-0.2739	1.1748	-0.0382	0.0504	0.8820
146	FLL1	0.2931	-1.2997	-0.1993	0.0000	0.0000	0.0000	0.0000	0.0000
146	FLL2	-0.0175	-0.0176	-0.0198	0.0000	0.0000	0.0000	0.0000	0.0000
146	FLL3	0.0069	0.0057	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000
146	FLL4	0.0086	0.0091	0.0151	0.0000	0.0000	0.0000	0.0000	0.0000
146	FLL5	0.0042	0.0048	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)		In-Plane Shear Fxy (kips/ft)		Moment Mxx (kips-ft/ft)		Moment Myy (kips-ft/ft)		Torsion Mxy (kips-ft/ft)		Shear Qx (kips/ft)		Shear Qy (kips/ft)	
146	FLL6	0.0953	-0.5409	-0.1069	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
146	FLL7	-0.0033	-0.0048	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
146	FLL8	0.0107	0.0106	0.0201	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
146	FLL9	0.0078	0.0086	0.0134	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	Selfweight	-0.0968	-0.4166	-0.1372	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	SuperDC	4.1012	-20.3992	7.3444	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	LL1	-0.1204	-1.6094	-0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	LL2	-0.0440	-1.1669	0.0369	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	LL3	0.9792	-5.8746	1.8559	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	LL4	0.8183	-4.4820	1.5040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	LL5	0.8394	-4.4715	1.5294	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	LL6	0.0566	0.0249	0.0677	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	Eq4	-5.3631	-4.9637	-2.1237	-0.0103	1.0398	-0.2676	0.0283	0.6970								
147	FLL1	0.1730	-0.9645	0.3223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	FLL2	-0.0543	-0.0428	-0.0697	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	FLL3	0.0140	-0.0005	0.0168	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	FLL4	0.0204	0.0071	0.0245	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	FLL5	0.0105	0.0046	0.0125	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	FLL6	0.0034	-0.4336	0.0446	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	FLL7	-0.0155	-0.0209	-0.0204	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	FLL8	0.0244	0.0059	0.0292	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
147	FLL9	0.0190	0.0074	0.0227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	Selfweight	-0.3060	-0.4360	-0.3303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	SuperDC	-1.6024	-4.2388	3.8622	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	LL1	-0.9576	-0.2979	-0.3557	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	LL2	-0.6134	-0.2359	-0.2264	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	LL3	-0.8863	-1.2487	0.7476	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	LL4	-0.5299	-0.9525	0.6815	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	LL5	-0.4752	-0.9420	0.7294	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	LL6	0.1400	0.0206	0.1163	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	Eq4	-11.8455	-0.8519	-1.2005	0.5389	0.8398	-0.2569	0.0752	0.7065								
148	FLL1	-0.1147	-0.1942	0.1603	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	FLL2	-0.1272	-0.0127	-0.1003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	FLL3	0.0210	-0.0104	0.0051	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	FLL4	0.0467	0.0031	0.0353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	FLL5	0.0259	0.0038	0.0215	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	FLL6	-0.1920	-0.0840	-0.0436	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	FLL7	-0.0490	-0.0181	-0.0507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	FLL8	0.0503	-0.0024	0.0328	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
148	FLL9	0.0450	0.0047	0.0356	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
149	Selfweight	-0.7154	-0.3350	-0.4881	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
149	SuperDC	-3.2231	-0.2430	-6.1548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
149	LL1	-3.2775	-0.1955	-2.1358	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
149	LL2	-2.5078	-0.1971	-1.7321	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
149	LL3	-2.0675	-0.1327	-2.4090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
149	LL4	-1.3243	-0.1064	-1.7387	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
149	LL5	-1.2093	-0.1005	-1.6689	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
149	LL6	0.2788	0.0103	0.1564	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
149	Eq4	-11.5684	2.7282	1.5187	0.3636	0.7116	-0.0135	0.0625	0.6061								

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
149	FLL1	-0.1892	-0.0018	-0.2823	0.0000	0.0000	0.0000	0.0000	0.0000
149	FLL2	-0.4888	-0.0373	-0.3003	0.0000	0.0000	0.0000	0.0000	0.0000
149	FLL3	0.0077	-0.0116	-0.0274	0.0000	0.0000	0.0000	0.0000	0.0000
149	FLL4	0.0834	-0.0001	0.0383	0.0000	0.0000	0.0000	0.0000	0.0000
149	FLL5	0.0516	0.0019	0.0290	0.0000	0.0000	0.0000	0.0000	0.0000
149	FLL6	-0.6294	-0.0373	-0.4361	0.0000	0.0000	0.0000	0.0000	0.0000
149	FLL7	-0.2253	-0.0278	-0.1682	0.0000	0.0000	0.0000	0.0000	0.0000
149	FLL8	0.0754	-0.0058	0.0196	0.0000	0.0000	0.0000	0.0000	0.0000
149	FLL9	0.0848	0.0016	0.0433	0.0000	0.0000	0.0000	0.0000	0.0000
150	Selfweight	-1.0919	-0.1623	-0.2486	0.0000	0.0000	0.0000	0.0000	0.0000
150	SuperDC	-3.3652	-14.9703	-9.2404	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL1	-3.4071	-5.3377	-3.4020	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL2	-2.6264	-4.3978	-2.8193	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL3	-2.4767	-5.1082	-3.5282	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL4	-1.5445	-3.9006	-2.6023	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL5	-1.3537	-3.9040	-2.5279	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL6	0.4446	-0.0044	0.1658	0.0000	0.0000	0.0000	0.0000	0.0000
150	Eq4	-10.3925	-0.6358	4.2049	-0.5782	0.7515	0.0358	-0.0660	0.5311
150	FLL1	-0.1904	-0.6775	-0.4130	0.0000	0.0000	0.0000	0.0000	0.0000
150	FLL2	-0.5530	-0.6626	-0.4720	0.0000	0.0000	0.0000	0.0000	0.0000
150	FLL3	-0.0321	0.0026	-0.0394	0.0000	0.0000	0.0000	0.0000	0.0000
150	FLL4	0.1208	-0.0008	0.0370	0.0000	0.0000	0.0000	0.0000	0.0000
150	FLL5	0.0823	-0.0008	0.0307	0.0000	0.0000	0.0000	0.0000	0.0000
150	FLL6	-0.6614	-1.0686	-0.6868	0.0000	0.0000	0.0000	0.0000	0.0000
150	FLL7	-0.3123	-0.2615	-0.2494	0.0000	0.0000	0.0000	0.0000	0.0000
150	FLL8	0.0881	0.0004	0.0123	0.0000	0.0000	0.0000	0.0000	0.0000
150	FLL9	0.1291	-0.0010	0.0442	0.0000	0.0000	0.0000	0.0000	0.0000
151	Selfweight	-1.0286	-0.1494	0.3140	0.0000	0.0000	0.0000	0.0000	0.0000
151	SuperDC	-3.0832	-13.8139	8.7286	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL1	-3.3881	-5.0171	3.1193	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL2	-2.6381	-4.1298	2.5857	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL3	-2.7674	-4.6974	2.6910	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL4	-1.6786	-3.5936	2.1322	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL5	-1.4062	-3.6015	2.1899	0.0000	0.0000	0.0000	0.0000	0.0000
151	LL6	0.6225	-0.0172	0.1365	0.0000	0.0000	0.0000	0.0000	0.0000
151	Eq4	-5.4862	-3.5020	7.7908	-0.6044	0.7613	-0.1019	0.0791	0.5363
151	FLL1	-0.1730	-0.6264	0.3861	0.0000	0.0000	0.0000	0.0000	0.0000
151	FLL2	-0.6009	-0.6197	0.3598	0.0000	0.0000	0.0000	0.0000	0.0000
151	FLL3	-0.0762	0.0079	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000
151	FLL4	0.1582	-0.0038	0.0316	0.0000	0.0000	0.0000	0.0000	0.0000
151	FLL5	0.1153	-0.0032	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000
151	FLL6	-0.6641	-1.0019	0.6176	0.0000	0.0000	0.0000	0.0000	0.0000
151	FLL7	-0.3970	-0.2370	0.1026	0.0000	0.0000	0.0000	0.0000	0.0000
151	FLL8	0.0979	0.0002	0.0142	0.0000	0.0000	0.0000	0.0000	0.0000
151	FLL9	0.1755	-0.0045	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000
152	Selfweight	-0.4785	-0.3463	0.6178	0.0000	0.0000	0.0000	0.0000	0.0000
152	SuperDC	-3.2622	0.4150	4.9434	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL1	-3.0127	0.1309	1.8135	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL2	-2.5147	0.0914	1.4642	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
152	LL3	-3.0665	0.2137	1.5649	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL4	-1.8772	0.1213	1.2001	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL5	-1.5246	0.1312	1.2548	0.0000	0.0000	0.0000	0.0000	0.0000
152	LL6	0.7708	-0.0089	0.0888	0.0000	0.0000	0.0000	0.0000	0.0000
152	Eq4	-2.2897	-1.9995	4.8443	0.2664	0.6968	0.0591	-0.0324	0.6400
152	FLL1	-0.1186	0.0084	0.2147	0.0000	0.0000	0.0000	0.0000	0.0000
152	FLL2	-0.6344	0.0350	0.2194	0.0000	0.0000	0.0000	0.0000	0.0000
152	FLL3	-0.1713	0.0117	-0.0137	0.0000	0.0000	0.0000	0.0000	0.0000
152	FLL4	0.1804	-0.0122	0.0084	0.0000	0.0000	0.0000	0.0000	0.0000
152	FLL5	0.1427	-0.0017	0.0165	0.0000	0.0000	0.0000	0.0000	0.0000
152	FLL6	-0.6025	0.0282	0.3591	0.0000	0.0000	0.0000	0.0000	0.0000
152	FLL7	-0.5285	0.0359	0.0723	0.0000	0.0000	0.0000	0.0000	0.0000
152	FLL8	0.0728	-0.0081	-0.0032	0.0000	0.0000	0.0000	0.0000	0.0000
152	FLL9	0.2089	-0.0082	0.0172	0.0000	0.0000	0.0000	0.0000	0.0000
153	Selfweight	0.0479	-0.5106	0.3332	0.0000	0.0000	0.0000	0.0000	0.0000
153	SuperDC	0.0451	-10.2838	-6.7404	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL1	-0.4346	-0.6155	0.2039	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL2	-0.9537	-1.6089	-0.8639	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL3	-1.8714	-3.2058	-2.0046	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL4	-1.0855	-2.6072	-1.7677	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL5	-0.6335	-2.5741	-1.6553	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL6	0.8727	0.0023	0.0801	0.0000	0.0000	0.0000	0.0000	0.0000
153	Eq4	-0.3757	-1.2185	-1.9500	0.5235	0.7797	0.2830	-0.0415	0.6257
153	FLL1	0.2176	-0.0016	0.0613	0.0000	0.0000	0.0000	0.0000	0.0000
153	FLL2	-0.4590	-0.4286	-0.2409	0.0000	0.0000	0.0000	0.0000	0.0000
153	FLL3	-0.3783	-0.4479	-0.3738	0.0000	0.0000	0.0000	0.0000	0.0000
153	FLL4	0.1639	-0.0243	-0.0421	0.0000	0.0000	0.0000	0.0000	0.0000
153	FLL5	0.1616	0.0004	0.0148	0.0000	0.0000	0.0000	0.0000	0.0000
153	FLL6	-0.1114	-0.1741	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
153	FLL7	-0.6872	-0.6915	-0.5087	0.0000	0.0000	0.0000	0.0000	0.0000
153	FLL8	-0.0361	-0.2063	-0.2027	0.0000	0.0000	0.0000	0.0000	0.0000
153	FLL9	0.2141	-0.0132	-0.0114	0.0000	0.0000	0.0000	0.0000	0.0000
154	Selfweight	0.2149	-0.5328	0.0287	0.0000	0.0000	0.0000	0.0000	0.0000
154	SuperDC	7.1919	-27.6546	-6.8018	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL1	0.2607	-1.9227	0.4051	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL2	0.1048	-4.4251	-0.9791	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL3	0.5401	-8.6447	-1.7791	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL4	0.6639	-6.9925	-1.8014	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL5	1.1989	-6.9585	-1.6347	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL6	0.9225	-0.0082	0.0782	0.0000	0.0000	0.0000	0.0000	0.0000
154	Eq4	-3.5584	-3.4368	-4.0324	0.2541	0.8388	0.1427	0.1319	0.8445
154	FLL1	0.2355	-0.0426	0.0882	0.0000	0.0000	0.0000	0.0000	0.0000
154	FLL2	-0.1118	-1.1575	-0.2038	0.0000	0.0000	0.0000	0.0000	0.0000
154	FLL3	-0.0996	-1.1629	-0.4059	0.0000	0.0000	0.0000	0.0000	0.0000
154	FLL4	0.1318	-0.0562	-0.0947	0.0000	0.0000	0.0000	0.0000	0.0000
154	FLL5	0.1708	-0.0015	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000
154	FLL6	0.0629	-0.5174	0.0410	0.0000	0.0000	0.0000	0.0000	0.0000
154	FLL7	-0.1875	-1.8169	-0.4942	0.0000	0.0000	0.0000	0.0000	0.0000
154	FLL8	0.0362	-0.5293	-0.2746	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
154	FLL9	0.2027	-0.0264	-0.0385	0.0000	0.0000	0.0000	0.0000	0.0000
155	Selfweight	0.1509	-0.5124	-0.2087	0.0000	0.0000	0.0000	0.0000	0.0000
155	SuperDC	6.6941	-20.6013	7.7086	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL1	0.4883	-1.3697	0.9165	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL2	0.1781	-3.1325	1.0994	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL3	0.2488	-6.5820	2.6689	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL4	0.4654	-5.1966	1.8236	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL5	1.1022	-5.1778	2.0237	0.0000	0.0000	0.0000	0.0000	0.0000
155	LL6	0.9580	-0.0347	0.0523	0.0000	0.0000	0.0000	0.0000	0.0000
155	Eq4	-4.0682	-3.2319	-0.9048	0.2656	0.8200	-0.2020	0.0889	0.7076
155	FLL1	0.2703	-0.0169	0.0432	0.0000	0.0000	0.0000	0.0000	0.0000
155	FLL2	-0.1473	-0.8892	0.3873	0.0000	0.0000	0.0000	0.0000	0.0000
155	FLL3	-0.1694	-0.8770	0.2676	0.0000	0.0000	0.0000	0.0000	0.0000
155	FLL4	0.1384	-0.0144	-0.0678	0.0000	0.0000	0.0000	0.0000	0.0000
155	FLL5	0.1774	-0.0064	0.0097	0.0000	0.0000	0.0000	0.0000	0.0000
155	FLL6	0.0978	-0.3780	0.2205	0.0000	0.0000	0.0000	0.0000	0.0000
155	FLL7	-0.2931	-1.4023	0.5236	0.0000	0.0000	0.0000	0.0000	0.0000
155	FLL8	0.0185	-0.3624	0.0324	0.0000	0.0000	0.0000	0.0000	0.0000
155	FLL9	0.1976	-0.0193	-0.0503	0.0000	0.0000	0.0000	0.0000	0.0000
156	Selfweight	-0.2177	-0.3170	-0.4186	0.0000	0.0000	0.0000	0.0000	0.0000
156	SuperDC	-4.8258	-2.1448	0.3147	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL1	0.4825	-0.2693	0.3289	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL2	-2.4372	-0.1573	-0.4237	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL3	-1.6903	-0.9764	0.9453	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL4	-2.4644	-0.5395	0.0187	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL5	-1.5973	-0.5423	0.2421	0.0000	0.0000	0.0000	0.0000	0.0000
156	LL6	0.9066	-0.0325	-0.0693	0.0000	0.0000	0.0000	0.0000	0.0000
156	Eq4	-5.7028	0.5633	3.9182	0.2514	0.7538	-0.1126	0.0108	0.7648
156	FLL1	0.2840	-0.0127	-0.0057	0.0000	0.0000	0.0000	0.0000	0.0000
156	FLL2	-0.3104	-0.1428	0.1838	0.0000	0.0000	0.0000	0.0000	0.0000
156	FLL3	-0.6982	-0.0778	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000
156	FLL4	-0.2158	0.0501	-0.1925	0.0000	0.0000	0.0000	0.0000	0.0000
156	FLL5	0.1679	-0.0060	-0.0128	0.0000	0.0000	0.0000	0.0000	0.0000
156	FLL6	0.0694	-0.0701	0.0835	0.0000	0.0000	0.0000	0.0000	0.0000
156	FLL7	-0.7317	-0.1946	0.2108	0.0000	0.0000	0.0000	0.0000	0.0000
156	FLL8	-0.5959	0.0330	-0.2043	0.0000	0.0000	0.0000	0.0000	0.0000
156	FLL9	0.0218	0.0172	-0.1099	0.0000	0.0000	0.0000	0.0000	0.0000
157	Selfweight	-0.4526	-0.1628	0.0834	0.0000	0.0000	0.0000	0.0000	0.0000
157	SuperDC	-1.4197	-11.0956	-7.1629	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL1	0.9735	0.0524	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL2	-2.2141	-3.2858	-2.0231	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL3	0.1592	-0.6120	-0.5019	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL4	-1.6393	-2.6552	-1.7744	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL5	-0.4722	-2.6801	-1.6013	0.0000	0.0000	0.0000	0.0000	0.0000
157	LL6	0.6991	0.0074	-0.1174	0.0000	0.0000	0.0000	0.0000	0.0000
157	Eq4	-1.1259	-0.9634	4.6388	-0.3837	0.7565	0.1140	-0.0456	0.6011
157	FLL1	0.2530	-0.0039	-0.0367	0.0000	0.0000	0.0000	0.0000	0.0000
157	FLL2	0.0094	0.0461	0.0389	0.0000	0.0000	0.0000	0.0000	0.0000
157	FLL3	-0.5251	-0.4733	-0.2797	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
157	FLL4	-0.4044	-0.5169	-0.3524	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
157	FLL5	0.1295	0.0014	-0.0217	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
157	FLL6	0.1982	0.0159	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
157	FLL7	-0.2920	-0.1329	-0.0644	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
157	FLL8	-0.7061	-0.8126	-0.5085	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
157	FLL9	-0.1513	-0.2166	-0.2123	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	Selfweight	-0.0693	-0.3406	0.4880	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	SuperDC	-0.1693	-13.7639	10.3203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL1	1.0098	-0.0432	0.0301	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL2	-1.7369	-3.7418	2.9304	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL3	0.6013	-1.1488	1.2332	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL4	-1.2302	-3.2377	2.6171	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL5	0.1039	-3.2769	2.6626	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL6	0.3620	-0.0987	-0.2228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	Eq4	2.8609	-4.5497	4.2652	-0.0875	0.7519	0.0406	0.0491	0.5571	0.0000
158	FLL1	0.1977	0.0013	-0.0414	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	FLL2	0.1027	-0.0234	0.0948	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	FLL3	-0.3928	-0.5750	0.5089	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	FLL4	-0.4350	-0.5660	0.3679	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	FLL5	0.0670	-0.0183	-0.0413	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	FLL6	0.2108	-0.0107	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	FLL7	-0.1245	-0.2562	0.3242	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	FLL8	-0.6369	-0.8995	0.6750	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
158	FLL9	-0.2293	-0.1879	0.1512	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	Selfweight	0.3577	-0.4849	0.2079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	SuperDC	0.0424	0.6655	2.1824	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL1	1.0114	-0.0008	-0.0911	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL2	-0.9318	0.1228	1.1831	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL3	1.2109	0.0191	0.3385	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL4	-0.5600	0.1259	0.9290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL5	0.7219	0.1026	0.8440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL6	-0.5216	0.0237	-0.5925	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	Eq4	1.3069	-1.2437	-0.9008	0.7694	0.6566	0.1218	-0.0046	0.5943	0.0000
159	FLL1	0.1547	0.0053	-0.0306	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	FLL2	0.1887	-0.0066	0.0155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	FLL3	-0.2033	0.0138	0.2117	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	FLL4	-0.4849	0.0386	0.1074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	FLL5	-0.0966	0.0044	-0.1097	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	FLL6	0.2190	-0.0004	-0.0168	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	FLL7	0.0635	-0.0025	0.1141	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	FLL8	-0.5072	0.0374	0.2738	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
159	FLL9	-0.6445	-0.1250	-0.2666	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	Selfweight	0.3864	-0.4807	-0.1543	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	SuperDC	-0.2159	-11.8387	-10.1928	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL1	0.9147	0.0030	-0.0723	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL2	0.8313	-0.0957	0.2012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL3	1.6845	-0.0444	0.0938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL4	0.6269	-0.7128	-0.3649	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL5	1.6379	-1.0578	-0.7585	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
160	LL6	-2.1806	-2.7246	-2.7676	0.0000	0.0000	0.0000	0.0000	0.0000
160	Eq4	-1.2331	0.5028	-3.8760	0.4684	0.7435	0.1685	-0.0233	0.5400
160	FLL1	0.1277	0.0040	-0.0191	0.0000	0.0000	0.0000	0.0000	0.0000
160	FLL2	0.1961	-0.0087	0.0082	0.0000	0.0000	0.0000	0.0000	0.0000
160	FLL3	0.0971	-0.0068	0.0657	0.0000	0.0000	0.0000	0.0000	0.0000
160	FLL4	-0.4619	-0.4914	-0.4077	0.0000	0.0000	0.0000	0.0000	0.0000
160	FLL5	-0.4038	-0.5046	-0.5125	0.0000	0.0000	0.0000	0.0000	0.0000
160	FLL6	0.2005	-0.0004	-0.0131	0.0000	0.0000	0.0000	0.0000	0.0000
160	FLL7	0.2032	-0.0146	0.0449	0.0000	0.0000	0.0000	0.0000	0.0000
160	FLL8	-0.1542	-0.1963	-0.0995	0.0000	0.0000	0.0000	0.0000	0.0000
160	FLL9	-0.3776	-1.1333	-0.6186	0.0000	0.0000	0.0000	0.0000	0.0000
161	Selfweight	0.0536	-0.3631	-0.4517	0.0000	0.0000	0.0000	0.0000	0.0000
161	SuperDC	4.8225	-17.8999	0.0234	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL1	0.8377	-0.0116	-0.0785	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL2	1.1521	-0.2907	0.1967	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL3	1.7266	-0.0746	-0.0495	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL4	1.2113	-1.1318	0.2340	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL5	1.9747	-1.7390	-0.2509	0.0000	0.0000	0.0000	0.0000	0.0000
161	LL6	-1.4422	-3.9890	-0.2841	0.0000	0.0000	0.0000	0.0000	0.0000
161	Eq4	-2.5884	-1.6063	2.0932	-0.2476	0.7490	-0.1103	0.0254	0.4857
161	FLL1	0.1080	-0.0012	-0.0150	0.0000	0.0000	0.0000	0.0000	0.0000
161	FLL2	0.1986	-0.0048	-0.0102	0.0000	0.0000	0.0000	0.0000	0.0000
161	FLL3	0.1557	-0.0239	0.0358	0.0000	0.0000	0.0000	0.0000	0.0000
161	FLL4	-0.1616	-0.7274	0.1185	0.0000	0.0000	0.0000	0.0000	0.0000
161	FLL5	-0.2671	-0.7387	-0.0526	0.0000	0.0000	0.0000	0.0000	0.0000
161	FLL6	0.1855	-0.0029	-0.0167	0.0000	0.0000	0.0000	0.0000	0.0000
161	FLL7	0.2378	-0.0148	0.0087	0.0000	0.0000	0.0000	0.0000	0.0000
161	FLL8	0.0262	-0.3163	0.0918	0.0000	0.0000	0.0000	0.0000	0.0000
161	FLL9	-0.6628	-0.9861	0.4103	0.0000	0.0000	0.0000	0.0000	0.0000
162	Selfweight	-0.3728	-0.1599	-0.2064	0.0000	0.0000	0.0000	0.0000	0.0000
162	SuperDC	-6.8755	-1.3651	6.6811	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL1	0.6983	-0.0238	-0.1266	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL2	1.1785	-0.0284	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL3	1.5652	-0.0383	-0.2125	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL4	0.6608	-0.2242	0.3239	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL5	0.6697	0.1748	0.4139	0.0000	0.0000	0.0000	0.0000	0.0000
162	LL6	-4.3156	-0.2923	1.5306	0.0000	0.0000	0.0000	0.0000	0.0000
162	Eq4	-3.8838	-0.8138	6.7769	-0.0437	0.6787	-0.1583	0.0107	0.4742
162	FLL1	0.0836	-0.0032	-0.0211	0.0000	0.0000	0.0000	0.0000	0.0000
162	FLL2	0.1766	-0.0054	-0.0236	0.0000	0.0000	0.0000	0.0000	0.0000
162	FLL3	0.1844	0.0012	-0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
162	FLL4	-0.5392	-0.1476	0.3291	0.0000	0.0000	0.0000	0.0000	0.0000
162	FLL5	-0.7992	-0.0541	0.2834	0.0000	0.0000	0.0000	0.0000	0.0000
162	FLL6	0.1555	-0.0052	-0.0277	0.0000	0.0000	0.0000	0.0000	0.0000
162	FLL7	0.2342	-0.0042	-0.0192	0.0000	0.0000	0.0000	0.0000	0.0000
162	FLL8	-0.0843	-0.0551	0.1387	0.0000	0.0000	0.0000	0.0000	0.0000
162	FLL9	-0.6412	0.1260	0.1518	0.0000	0.0000	0.0000	0.0000	0.0000
163	Selfweight	-0.3728	-0.1599	0.2064	0.0000	0.0000	0.0000	0.0000	0.0000
163	SuperDC	-6.8728	-1.3651	-6.6751	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
163	LL1	0.5651	-0.0019	-0.1588	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL2	1.2322	0.0018	-0.0540	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL3	1.3531	-0.0068	-0.2638	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL4	1.1569	0.1227	-0.0862	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL5	-0.7321	-0.6136	-1.6490	0.0000	0.0000	0.0000	0.0000	0.0000
163	LL6	-4.3156	-0.2923	-1.5306	0.0000	0.0000	0.0000	0.0000	0.0000
163	Eq4	1.8599	0.3927	4.7209	-0.0437	0.6787	0.1583	-0.0107	0.4742
163	FLL1	0.0621	0.0007	-0.0244	0.0000	0.0000	0.0000	0.0000	0.0000
163	FLL2	0.1512	-0.0012	-0.0319	0.0000	0.0000	0.0000	0.0000	0.0000
163	FLL3	0.1880	-0.0030	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
163	FLL4	-0.1000	0.0957	0.0519	0.0000	0.0000	0.0000	0.0000	0.0000
163	FLL5	-0.7992	-0.0541	-0.2834	0.0000	0.0000	0.0000	0.0000	0.0000
163	FLL6	0.1263	-0.0004	-0.0348	0.0000	0.0000	0.0000	0.0000	0.0000
163	FLL7	0.2157	-0.0024	-0.0261	0.0000	0.0000	0.0000	0.0000	0.0000
163	FLL8	0.1056	0.0354	0.0333	0.0000	0.0000	0.0000	0.0000	0.0000
163	FLL9	-0.4722	-0.0311	0.0289	0.0000	0.0000	0.0000	0.0000	0.0000
164	Selfweight	0.0536	-0.3631	0.4517	0.0000	0.0000	0.0000	0.0000	0.0000
164	SuperDC	4.8335	-17.8990	-0.0158	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL1	0.3874	0.0120	-0.1520	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL2	1.1756	-0.0273	-0.1085	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL3	1.0610	0.0134	-0.2716	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL4	1.1655	-0.0524	-0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL5	1.4116	-3.8929	-0.5044	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL6	-1.4422	-3.9890	0.2841	0.0000	0.0000	0.0000	0.0000	0.0000
164	Eq4	4.1635	-3.9016	2.0833	-0.2476	0.7490	0.1103	-0.0254	0.4857
164	FLL1	0.0368	0.0037	-0.0188	0.0000	0.0000	0.0000	0.0000	0.0000
164	FLL2	0.1146	0.0008	-0.0343	0.0000	0.0000	0.0000	0.0000	0.0000
164	FLL3	0.1852	-0.0049	-0.0144	0.0000	0.0000	0.0000	0.0000	0.0000
164	FLL4	0.0346	-0.0356	0.1385	0.0000	0.0000	0.0000	0.0000	0.0000
164	FLL5	-0.2671	-0.7387	0.0526	0.0000	0.0000	0.0000	0.0000	0.0000
164	FLL6	0.0875	0.0027	-0.0332	0.0000	0.0000	0.0000	0.0000	0.0000
164	FLL7	0.1846	-0.0019	-0.0350	0.0000	0.0000	0.0000	0.0000	0.0000
164	FLL8	0.1714	-0.0198	0.0536	0.0000	0.0000	0.0000	0.0000	0.0000
164	FLL9	-0.0975	-0.3078	0.1388	0.0000	0.0000	0.0000	0.0000	0.0000
165	Selfweight	0.3864	-0.4807	0.1543	0.0000	0.0000	0.0000	0.0000	0.0000
165	SuperDC	-0.1961	-11.8389	10.2024	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL1	0.2321	0.0169	-0.0986	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL2	1.0159	-0.0029	-0.1486	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL3	0.7700	0.0263	-0.1936	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL4	1.1014	-0.0041	-0.0943	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL5	-0.1880	-2.6133	1.9812	0.0000	0.0000	0.0000	0.0000	0.0000
165	LL6	-2.1806	-2.7246	2.7676	0.0000	0.0000	0.0000	0.0000	0.0000
165	Eq4	1.2569	-4.1427	-0.7370	0.4684	0.7435	-0.1685	0.0233	0.5400
165	FLL1	0.0202	0.0032	-0.0067	0.0000	0.0000	0.0000	0.0000	0.0000
165	FLL2	0.0769	0.0029	-0.0270	0.0000	0.0000	0.0000	0.0000	0.0000
165	FLL3	0.1621	-0.0014	-0.0232	0.0000	0.0000	0.0000	0.0000	0.0000
165	FLL4	0.1514	-0.0120	0.0522	0.0000	0.0000	0.0000	0.0000	0.0000
165	FLL5	-0.4038	-0.5046	0.5125	0.0000	0.0000	0.0000	0.0000	0.0000
165	FLL6	0.0536	0.0037	-0.0214	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
165	FLL7	0.1424	0.0016	-0.0338	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
165	FLL8	0.2083	-0.0075	0.0068	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
165	FLL9	-0.0400	-0.2208	0.2673	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	Selfweight	0.3577	-0.4849	-0.2079	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	SuperDC	0.0682	0.6606	-2.1790	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL1	0.1571	0.0179	-0.0570	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL2	0.8964	0.0294	-0.1189	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL3	0.6209	0.0343	-0.1218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL4	1.0326	0.0137	-0.0799	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL5	-0.5594	0.1834	-0.8181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL6	-0.5216	0.0237	0.5925	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	Eq4	-1.2102	1.4522	-1.5704	0.7694	0.6566	-0.1218	0.0046	0.5943	0.0000
166	FLL1	0.0156	0.0006	-0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	FLL2	0.0560	0.0053	-0.0173	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	FLL3	0.1431	0.0049	-0.0195	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	FLL4	0.1964	-0.0122	0.0266	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	FLL5	-0.0966	0.0044	0.1097	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	FLL6	0.0374	0.0038	-0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	FLL7	0.1157	0.0068	-0.0239	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	FLL8	0.2141	-0.0018	-0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	FLL9	0.1266	-0.0091	0.0687	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	Selfweight	-0.0693	-0.3406	-0.4880	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	SuperDC	-0.1526	-13.7688	-10.3344	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL1	0.1018	0.0029	-0.0290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL2	0.7654	-0.0034	-0.0841	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL3	0.4870	-0.0018	-0.0818	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL4	0.9168	-0.0142	-0.0895	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL5	-0.9470	-3.4251	-2.7808	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL6	0.3620	-0.0987	0.2228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	Eq4	-2.8239	0.2783	1.0743	-0.0875	0.7519	-0.0406	-0.0491	0.5571	0.0000
167	FLL1	0.0107	-0.0011	-0.0041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	FLL2	0.0403	0.0013	-0.0078	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	FLL3	0.1225	-0.0002	-0.0128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	FLL4	0.2079	-0.0072	-0.0037	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	FLL5	0.0670	-0.0183	0.0413	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	FLL6	0.0251	0.0005	-0.0067	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	FLL7	0.0927	0.0011	-0.0126	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	FLL8	0.2025	-0.0038	-0.0126	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
167	FLL9	0.2057	-0.0144	0.0155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	Selfweight	-0.4526	-0.1628	-0.0834	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	SuperDC	-1.4325	-11.0946	7.1410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL1	0.0494	-0.0014	-0.0323	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL2	0.5803	-0.0146	-0.1382	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL3	0.3213	-0.0076	-0.1166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL4	0.7073	-0.0166	-0.1664	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL5	-1.5339	-2.7513	1.6464	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL6	0.6991	0.0074	0.1174	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
168	Eq4	0.7936	-2.4791	6.8763	-0.3837	0.7565	-0.1140	0.0456	0.6011	0.0000
168	FLL1	0.0023	0.0002	-0.0063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
168	FLL2	0.0260	-0.0008	-0.0088	0.0000	0.0000	0.0000	0.0000	0.0000
168	FLL3	0.0942	-0.0024	-0.0211	0.0000	0.0000	0.0000	0.0000	0.0000
168	FLL4	0.1861	-0.0041	-0.0254	0.0000	0.0000	0.0000	0.0000	0.0000
168	FLL5	0.1295	0.0014	0.0217	0.0000	0.0000	0.0000	0.0000	0.0000
168	FLL6	0.0128	-0.0003	-0.0078	0.0000	0.0000	0.0000	0.0000	0.0000
168	FLL7	0.0674	-0.0019	-0.0173	0.0000	0.0000	0.0000	0.0000	0.0000
168	FLL8	0.1681	-0.0040	-0.0301	0.0000	0.0000	0.0000	0.0000	0.0000
168	FLL9	0.2142	-0.0029	-0.0126	0.0000	0.0000	0.0000	0.0000	0.0000
169	Selfweight	-0.2177	-0.3170	0.4186	0.0000	0.0000	0.0000	0.0000	0.0000
169	SuperDC	-4.8773	-2.1482	-0.3354	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL1	0.0007	0.0049	-0.0251	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL2	0.3481	0.0062	-0.1518	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL3	0.1428	0.0141	-0.1012	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL4	0.4371	0.0109	-0.1736	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL5	-2.5698	-0.5182	-0.1266	0.0000	0.0000	0.0000	0.0000	0.0000
169	LL6	0.9066	-0.0325	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000
169	Eq4	4.3126	-1.2402	3.8168	0.2514	0.7538	0.1126	-0.0108	0.7648
169	FLL1	-0.0047	0.0020	-0.0019	0.0000	0.0000	0.0000	0.0000	0.0000
169	FLL2	0.0108	0.0004	-0.0095	0.0000	0.0000	0.0000	0.0000	0.0000
169	FLL3	0.0578	0.0005	-0.0244	0.0000	0.0000	0.0000	0.0000	0.0000
169	FLL4	0.1413	-0.0006	-0.0342	0.0000	0.0000	0.0000	0.0000	0.0000
169	FLL5	0.1679	-0.0060	0.0128	0.0000	0.0000	0.0000	0.0000	0.0000
169	FLL6	0.0012	0.0012	-0.0060	0.0000	0.0000	0.0000	0.0000	0.0000
169	FLL7	0.0373	0.0005	-0.0197	0.0000	0.0000	0.0000	0.0000	0.0000
169	FLL8	0.1160	0.0002	-0.0368	0.0000	0.0000	0.0000	0.0000	0.0000
169	FLL9	0.1924	-0.0032	-0.0236	0.0000	0.0000	0.0000	0.0000	0.0000
170	Selfweight	0.1509	-0.5124	0.2087	0.0000	0.0000	0.0000	0.0000	0.0000
170	SuperDC	6.6054	-20.6140	-7.7519	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL1	-0.0229	0.0063	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL2	0.1948	0.0200	-0.1102	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL3	0.0458	0.0209	-0.0447	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL4	0.2646	0.0252	-0.1159	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL5	0.2768	-5.1940	-1.9268	0.0000	0.0000	0.0000	0.0000	0.0000
170	LL6	0.9580	-0.0347	-0.0523	0.0000	0.0000	0.0000	0.0000	0.0000
170	Eq4	6.2687	-3.2186	-3.3217	0.2656	0.8200	0.2020	-0.0889	0.7076
170	FLL1	-0.0055	0.0016	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000
170	FLL2	0.0012	0.0014	-0.0065	0.0000	0.0000	0.0000	0.0000	0.0000
170	FLL3	0.0329	0.0029	-0.0191	0.0000	0.0000	0.0000	0.0000	0.0000
170	FLL4	0.1061	0.0026	-0.0313	0.0000	0.0000	0.0000	0.0000	0.0000
170	FLL5	0.1774	-0.0064	-0.0097	0.0000	0.0000	0.0000	0.0000	0.0000
170	FLL6	-0.0043	0.0015	-0.0015	0.0000	0.0000	0.0000	0.0000	0.0000
170	FLL7	0.0172	0.0024	-0.0150	0.0000	0.0000	0.0000	0.0000	0.0000
170	FLL8	0.0784	0.0037	-0.0307	0.0000	0.0000	0.0000	0.0000	0.0000
170	FLL9	0.1665	-0.0005	-0.0310	0.0000	0.0000	0.0000	0.0000	0.0000
171	Selfweight	0.2149	-0.5328	-0.0287	0.0000	0.0000	0.0000	0.0000	0.0000
171	SuperDC	7.0729	-27.6852	6.7272	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL1	-0.0253	0.0035	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL2	0.1412	0.0227	-0.0822	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL3	0.0258	0.0145	-0.0207	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
171	LL4	0.2080	0.0257	-0.0825	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL5	0.4210	-6.9703	1.7381	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL6	0.9225	-0.0082	-0.0782	0.0000	0.0000	0.0000	0.0000	0.0000
171	Eq4	5.9125	-5.2265	-1.9180	0.2541	0.8388	-0.1427	-0.1319	0.8445
171	FLL1	-0.0033	0.0002	0.0053	0.0000	0.0000	0.0000	0.0000	0.0000
171	FLL2	-0.0019	0.0014	-0.0047	0.0000	0.0000	0.0000	0.0000	0.0000
171	FLL3	0.0236	0.0037	-0.0148	0.0000	0.0000	0.0000	0.0000	0.0000
171	FLL4	0.0900	0.0052	-0.0265	0.0000	0.0000	0.0000	0.0000	0.0000
171	FLL5	0.1708	-0.0015	-0.0145	0.0000	0.0000	0.0000	0.0000	0.0000
171	FLL6	-0.0049	0.0008	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
171	FLL7	0.0100	0.0030	-0.0114	0.0000	0.0000	0.0000	0.0000	0.0000
171	FLL8	0.0630	0.0056	-0.0247	0.0000	0.0000	0.0000	0.0000	0.0000
171	FLL9	0.1499	0.0038	-0.0288	0.0000	0.0000	0.0000	0.0000	0.0000
172	Selfweight	0.0479	-0.5106	-0.3332	0.0000	0.0000	0.0000	0.0000	0.0000
172	SuperDC	-0.1040	-10.2870	6.6742	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL1	-0.0248	0.0002	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL2	0.1022	0.0185	-0.0498	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL3	0.0164	0.0037	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL4	0.1681	0.0165	-0.0504	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL5	-1.4119	-2.6044	1.6719	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL6	0.8727	0.0023	-0.0801	0.0000	0.0000	0.0000	0.0000	0.0000
172	Eq4	0.4948	-2.0009	0.1551	0.5235	0.7797	-0.2830	0.0415	0.6257
172	FLL1	-0.0009	-0.0016	0.0038	0.0000	0.0000	0.0000	0.0000	0.0000
172	FLL2	-0.0039	0.0013	-0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
172	FLL3	0.0165	0.0034	-0.0091	0.0000	0.0000	0.0000	0.0000	0.0000
172	FLL4	0.0768	0.0052	-0.0181	0.0000	0.0000	0.0000	0.0000	0.0000
172	FLL5	0.1616	0.0004	-0.0148	0.0000	0.0000	0.0000	0.0000	0.0000
172	FLL6	-0.0047	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
172	FLL7	0.0047	0.0028	-0.0068	0.0000	0.0000	0.0000	0.0000	0.0000
172	FLL8	0.0509	0.0052	-0.0160	0.0000	0.0000	0.0000	0.0000	0.0000
172	FLL9	0.1346	0.0046	-0.0218	0.0000	0.0000	0.0000	0.0000	0.0000
173	Selfweight	-0.4785	-0.3463	-0.6178	0.0000	0.0000	0.0000	0.0000	0.0000
173	SuperDC	-3.6392	0.4249	-5.0941	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL1	-0.0252	-0.0015	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL2	0.0619	0.0062	-0.0174	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL3	-0.0008	-0.0049	-0.0144	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL4	0.1172	0.0008	-0.0305	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL5	-2.0872	0.1211	-1.1543	0.0000	0.0000	0.0000	0.0000	0.0000
173	LL6	0.7708	-0.0089	-0.0888	0.0000	0.0000	0.0000	0.0000	0.0000
173	Eq4	1.2975	2.1293	3.2491	0.2664	0.6968	-0.0591	0.0324	0.6400
173	FLL1	-0.0005	-0.0019	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
173	FLL2	-0.0052	0.0007	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
173	FLL3	0.0099	0.0015	-0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
173	FLL4	0.0606	0.0015	-0.0091	0.0000	0.0000	0.0000	0.0000	0.0000
173	FLL5	0.1427	-0.0017	-0.0165	0.0000	0.0000	0.0000	0.0000	0.0000
173	FLL6	-0.0049	-0.0005	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
173	FLL7	0.0004	0.0015	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
173	FLL8	0.0376	0.0019	-0.0065	0.0000	0.0000	0.0000	0.0000	0.0000
173	FLL9	0.1128	0.0006	-0.0148	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
174	Selfweight	-1.0286	-0.1494	-0.3140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	SuperDC	-3.5104	-14.1935	-8.9793	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL1	-0.0277	0.0001	-0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL2	0.0386	-0.0017	-0.0126	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL3	-0.0267	-0.0017	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL4	0.0695	-0.0040	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL5	-2.0041	-3.1147	-1.9755	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	LL6	0.6225	-0.0172	-0.1365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	Eq4	4.5409	-0.9781	4.9658	-0.6044	0.7613	0.1019	-0.0791	0.5363	0.0000
174	FLL1	-0.0045	-0.0003	-0.0051	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	FLL2	-0.0043	0.0001	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	FLL3	0.0072	-0.0002	-0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	FLL4	0.0471	-0.0014	-0.0099	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	FLL5	0.1153	-0.0032	-0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	FLL6	-0.0059	0.0000	-0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	FLL7	0.0001	0.0001	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	FLL8	0.0286	-0.0008	-0.0057	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
174	FLL9	0.0895	-0.0025	-0.0192	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	Selfweight	-1.0919	-0.1623	0.2486	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	SuperDC	-3.7999	-15.3620	9.4887	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL1	-0.0297	0.0019	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL2	0.0196	-0.0001	-0.0161	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL3	-0.0528	0.0058	-0.0203	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL4	0.0222	0.0032	-0.0403	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL5	-1.9782	-3.3193	2.1540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL6	0.4446	-0.0044	-0.1658	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	Eq4	9.3539	-4.2230	7.2017	-0.5782	0.7515	-0.0358	0.0660	0.5311	0.0000
175	FLL1	-0.0095	0.0012	-0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	FLL2	-0.0027	-0.0001	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	FLL3	0.0055	-0.0003	-0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	FLL4	0.0331	-0.0006	-0.0128	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	FLL5	0.0823	-0.0008	-0.0307	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	FLL6	-0.0068	0.0005	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	FLL7	0.0009	-0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	FLL8	0.0201	-0.0005	-0.0077	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
175	FLL9	0.0636	-0.0009	-0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	Selfweight	-0.7154	-0.3350	0.4881	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	SuperDC	-3.6517	-0.2731	6.2896	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL1	-0.0275	0.0031	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL2	0.0044	0.0035	-0.0111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL3	-0.0637	0.0119	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL4	-0.0114	0.0112	-0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL5	-1.8599	-0.1698	1.3187	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	LL6	0.2788	0.0103	-0.1564	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	Eq4	10.5758	-2.7954	3.5298	0.3636	0.7116	0.0135	-0.0625	0.6061	0.0000
176	FLL1	-0.0116	0.0022	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	FLL2	-0.0014	-0.0002	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	FLL3	0.0036	0.0000	-0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	FLL4	0.0201	0.0010	-0.0120	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
176	FLL5	0.0516	0.0019	-0.0290	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	FLL6	-0.0066	0.0009	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	FLL7	0.0012	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	FLL8	0.0121	0.0006	-0.0074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
176	FLL9	0.0394	0.0016	-0.0227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	Selfweight	-0.3060	-0.4360	0.3303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	SuperDC	-1.6807	-4.1234	-3.6622	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL1	-0.0191	0.0013	0.0123	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL2	-0.0026	0.0034	-0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL3	-0.0502	0.0067	0.0296	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL4	-0.0210	0.0088	0.0071	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL5	-0.3955	-0.1616	0.1740	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	LL6	0.1400	0.0206	-0.1163	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	Eq4	11.3052	-0.5835	-2.5187	0.5389	0.8398	0.2569	-0.0752	0.7065	0.0000
177	FLL1	-0.0092	0.0012	0.0054	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	FLL2	-0.0005	-0.0002	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	FLL3	0.0019	0.0002	-0.0016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	FLL4	0.0097	0.0018	-0.0084	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	FLL5	0.0259	0.0038	-0.0215	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	FLL6	-0.0047	0.0004	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	FLL7	0.0010	-0.0001	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	FLL8	0.0057	0.0011	-0.0051	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
177	FLL9	0.0194	0.0031	-0.0164	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	Selfweight	-0.0968	-0.4166	0.1372	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	SuperDC	3.9290	-19.8668	-7.0636	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL1	-0.0094	-0.0022	0.0116	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL2	-0.0026	0.0007	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL3	-0.0262	-0.0048	0.0322	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL4	-0.0134	-0.0002	0.0167	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL5	-0.0315	-0.7332	-0.0106	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	LL6	0.0566	0.0249	-0.0677	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	Eq4	6.7563	-1.9551	-4.6198	-0.0103	1.0398	0.2676	-0.0283	0.6970	0.0000
178	FLL1	-0.0048	-0.0009	0.0059	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	FLL2	-0.0002	-0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	FLL3	0.0008	0.0003	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	FLL4	0.0038	0.0018	-0.0045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	FLL5	0.0105	0.0046	-0.0125	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	FLL6	-0.0024	-0.0005	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	FLL7	0.0005	0.0001	-0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	FLL8	0.0022	0.0011	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
178	FLL9	0.0078	0.0035	-0.0093	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	Selfweight	-0.0343	-0.3903	0.0562	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	SuperDC	6.2151	-26.6038	3.7356	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL1	-0.0042	-0.0042	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL2	-0.0014	-0.0010	0.0032	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL3	-0.0121	-0.0115	0.0234	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL4	-0.0066	-0.0057	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL5	0.1428	-0.8111	0.1287	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL6	0.0229	0.0258	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
179	Eq4	6.3188	-4.1499	-2.4224	-0.2739	1.1748	0.0382	-0.0504	0.8820	
179	FLL1	-0.0022	-0.0021	0.0043	0.0000	0.0000	0.0000	0.0000	0.0000	
179	FLL2	0.0000	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
179	FLL3	0.0003	0.0004	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	
179	FLL4	0.0015	0.0018	-0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	
179	FLL5	0.0042	0.0048	-0.0070	0.0000	0.0000	0.0000	0.0000	0.0000	
179	FLL6	-0.0011	-0.0010	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	
179	FLL7	0.0002	0.0002	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	
179	FLL8	0.0009	0.0010	-0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	
179	FLL9	0.0031	0.0036	-0.0051	0.0000	0.0000	0.0000	0.0000	0.0000	
180	Selfweight	-0.0107	-0.3582	0.0144	0.0000	0.0000	0.0000	0.0000	0.0000	
180	SuperDC	-0.7093	-11.0933	5.6974	0.0000	0.0000	0.0000	0.0000	0.0000	
180	LL1	-0.0014	-0.0042	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000	
180	LL2	-0.0005	-0.0020	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	
180	LL3	-0.0041	-0.0125	0.0104	0.0000	0.0000	0.0000	0.0000	0.0000	
180	LL4	-0.0023	-0.0079	0.0066	0.0000	0.0000	0.0000	0.0000	0.0000	
180	LL5	-0.0304	-0.3195	0.1573	0.0000	0.0000	0.0000	0.0000	0.0000	
180	LL6	0.0075	0.0170	-0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	
180	Eq4	1.4008	-3.2560	0.6303	-0.1293	1.1234	-0.0618	-0.0679	0.7573	
180	FLL1	-0.0008	-0.0023	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000	
180	FLL2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
180	FLL3	0.0001	0.0003	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	
180	FLL4	0.0005	0.0010	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	
180	FLL5	0.0014	0.0031	-0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	
180	FLL6	-0.0004	-0.0011	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	
180	FLL7	0.0001	0.0003	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	
180	FLL8	0.0003	0.0006	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	
180	FLL9	0.0010	0.0023	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	
181	Selfweight	-0.0001	-0.1157	-0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	
181	SuperDC	-2.6777	-1.4294	-1.6219	0.0000	0.0000	0.0000	0.0000	0.0000	
181	LL1	-0.1913	-0.1068	-0.1137	0.0000	0.0000	0.0000	0.0000	0.0000	
181	LL2	-0.1236	-0.0693	-0.0716	0.0000	0.0000	0.0000	0.0000	0.0000	
181	LL3	-0.7684	-0.4119	-0.4643	0.0000	0.0000	0.0000	0.0000	0.0000	
181	LL4	-0.5810	-0.3110	-0.3507	0.0000	0.0000	0.0000	0.0000	0.0000	
181	LL5	-0.5795	-0.3100	-0.3500	0.0000	0.0000	0.0000	0.0000	0.0000	
181	LL6	0.0048	0.0030	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000	
181	Eq4	0.1284	0.6435	0.8073	-0.2415	0.3765	0.1414	0.1738	0.5946	
181	FLL1	-0.1299	-0.0695	-0.0791	0.0000	0.0000	0.0000	0.0000	0.0000	
181	FLL2	-0.0003	-0.0008	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	
181	FLL3	0.0031	0.0018	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000	
181	FLL4	0.0023	0.0014	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000	
181	FLL5	0.0009	0.0006	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	
181	FLL6	-0.0535	-0.0294	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000	
181	FLL7	0.0023	0.0010	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000	
181	FLL8	0.0035	0.0020	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	
181	FLL9	0.0019	0.0011	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	
182	Selfweight	-0.0159	-0.1242	-0.0165	0.0000	0.0000	0.0000	0.0000	0.0000	
182	SuperDC	-12.6411	-39.1339	-22.0410	0.0000	0.0000	0.0000	0.0000	0.0000	
182	LL1	-0.9006	-2.6129	-1.5110	0.0000	0.0000	0.0000	0.0000	0.0000	

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
182	LL2	-0.6016	-1.8601	-1.0555	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL3	-3.6209	-11.0923	-6.2701	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL4	-2.7475	-8.4970	-4.7887	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL5	-2.7416	-8.4947	-4.7845	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL6	0.0183	0.0060	0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
182	Eq4	-0.4651	-5.3090	-0.4978	-0.9258	0.3072	0.0375	1.4176	1.3664
182	FLL1	-0.6083	-1.8482	-1.0470	0.0000	0.0000	0.0000	0.0000	0.0000
182	FLL2	-0.0040	-0.0038	-0.0050	0.0000	0.0000	0.0000	0.0000	0.0000
182	FLL3	0.0101	0.0015	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000
182	FLL4	0.0081	0.0022	0.0053	0.0000	0.0000	0.0000	0.0000	0.0000
182	FLL5	0.0034	0.0011	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
182	FLL6	-0.2516	-0.7439	-0.4267	0.0000	0.0000	0.0000	0.0000	0.0000
182	FLL7	0.0059	-0.0008	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
182	FLL8	0.0119	0.0026	0.0075	0.0000	0.0000	0.0000	0.0000	0.0000
182	FLL9	0.0069	0.0020	0.0046	0.0000	0.0000	0.0000	0.0000	0.0000
183	Selfweight	-0.1021	-0.1263	-0.0508	0.0000	0.0000	0.0000	0.0000	0.0000
183	SuperDC	-7.0647	-33.0183	15.5472	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL1	-0.7946	-2.1803	0.9266	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL2	-0.4765	-1.5553	0.6956	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL3	-2.1761	-9.3529	4.3339	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL4	-1.5828	-7.1674	3.3545	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL5	-1.5601	-7.1656	3.3641	0.0000	0.0000	0.0000	0.0000	0.0000
183	LL6	0.0637	0.0041	0.0259	0.0000	0.0000	0.0000	0.0000	0.0000
183	Eq4	-18.3981	-6.9094	4.5648	-0.2901	0.3250	-0.4493	-0.6313	0.8177
183	FLL1	-0.3642	-1.5579	0.7225	0.0000	0.0000	0.0000	0.0000	0.0000
183	FLL2	-0.0379	-0.0006	-0.0119	0.0000	0.0000	0.0000	0.0000	0.0000
183	FLL3	0.0238	-0.0004	0.0075	0.0000	0.0000	0.0000	0.0000	0.0000
183	FLL4	0.0252	0.0011	0.0096	0.0000	0.0000	0.0000	0.0000	0.0000
183	FLL5	0.0118	0.0008	0.0048	0.0000	0.0000	0.0000	0.0000	0.0000
183	FLL6	-0.1965	-0.6232	0.2737	0.0000	0.0000	0.0000	0.0000	0.0000
183	FLL7	-0.0003	-0.0012	-0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
183	FLL8	0.0333	0.0008	0.0119	0.0000	0.0000	0.0000	0.0000	0.0000
183	FLL9	0.0225	0.0012	0.0088	0.0000	0.0000	0.0000	0.0000	0.0000
184	Selfweight	-0.4455	-0.1288	-0.1328	0.0000	0.0000	0.0000	0.0000	0.0000
184	SuperDC	5.7952	3.1137	-2.2037	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL1	-0.8220	-0.0139	-0.5988	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL2	-0.4584	-0.0440	-0.4433	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL3	1.0407	0.8302	-0.8033	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL4	1.0178	0.6376	-0.5710	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL5	1.0930	0.6392	-0.5520	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL6	0.1949	0.0030	0.0463	0.0000	0.0000	0.0000	0.0000	0.0000
184	Eq4	-17.4928	0.3053	-1.1727	0.5833	0.3087	-0.3124	-0.0540	0.5501
184	FLL1	0.2112	0.1496	-0.1115	0.0000	0.0000	0.0000	0.0000	0.0000
184	FLL2	-0.1730	-0.0353	-0.0718	0.0000	0.0000	0.0000	0.0000	0.0000
184	FLL3	0.0384	-0.0019	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
184	FLL4	0.0676	0.0003	0.0142	0.0000	0.0000	0.0000	0.0000	0.0000
184	FLL5	0.0361	0.0006	0.0086	0.0000	0.0000	0.0000	0.0000	0.0000
184	FLL6	-0.1194	0.0190	-0.1260	0.0000	0.0000	0.0000	0.0000	0.0000
184	FLL7	-0.0576	-0.0163	-0.0326	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
184	FLL8	0.0768	-0.0006	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000
184	FLL9	0.0639	0.0006	0.0143	0.0000	0.0000	0.0000	0.0000	0.0000
185	Selfweight	-1.1256	-0.1123	-0.2012	0.0000	0.0000	0.0000	0.0000	0.0000
185	SuperDC	3.6926	2.7475	1.0090	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL1	-2.2479	1.2462	0.2021	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL2	-1.5347	1.0284	0.1761	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL3	-0.2579	0.9871	0.1855	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL4	0.1987	0.7515	0.1827	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL5	0.3706	0.7526	0.2107	0.0000	0.0000	0.0000	0.0000	0.0000
185	LL6	0.4192	0.0019	0.0628	0.0000	0.0000	0.0000	0.0000	0.0000
185	Eq4	-17.7398	0.9581	0.5826	0.4368	0.2913	0.0083	0.0399	0.4769
185	FLL1	0.0953	0.1235	0.0440	0.0000	0.0000	0.0000	0.0000	0.0000
185	FLL2	-0.4043	0.1611	0.0072	0.0000	0.0000	0.0000	0.0000	0.0000
185	FLL3	0.0209	-0.0022	-0.0102	0.0000	0.0000	0.0000	0.0000	0.0000
185	FLL4	0.1283	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000
185	FLL5	0.0776	0.0004	0.0116	0.0000	0.0000	0.0000	0.0000	0.0000
185	FLL6	-0.4029	0.2443	0.0405	0.0000	0.0000	0.0000	0.0000	0.0000
185	FLL7	-0.1974	0.0620	-0.0156	0.0000	0.0000	0.0000	0.0000	0.0000
185	FLL8	0.1205	-0.0011	0.0083	0.0000	0.0000	0.0000	0.0000	0.0000
185	FLL9	0.1289	0.0003	0.0174	0.0000	0.0000	0.0000	0.0000	0.0000
186	Selfweight	-1.7478	-0.0830	-0.1047	0.0000	0.0000	0.0000	0.0000	0.0000
186	SuperDC	-12.9451	-18.3984	-10.4492	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL1	-8.2871	-6.6735	-3.6912	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL2	-6.5013	-5.5058	-3.0507	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL3	-6.5179	-6.3053	-3.7019	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL4	-4.4195	-4.8123	-2.7899	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL5	-4.1283	-4.8132	-2.7608	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL6	0.6865	-0.0015	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
186	Eq4	-11.6548	-1.7465	3.1573	-0.7738	0.2030	0.1358	0.2926	0.6841
186	FLL1	-0.6558	-0.8289	-0.4687	0.0000	0.0000	0.0000	0.0000	0.0000
186	FLL2	-1.2267	-0.8348	-0.4784	0.0000	0.0000	0.0000	0.0000	0.0000
186	FLL3	-0.0339	0.0006	-0.0169	0.0000	0.0000	0.0000	0.0000	0.0000
186	FLL4	0.1911	-0.0002	0.0147	0.0000	0.0000	0.0000	0.0000	0.0000
186	FLL5	0.1271	-0.0003	0.0121	0.0000	0.0000	0.0000	0.0000	0.0000
186	FLL6	-1.6225	-1.3338	-0.7427	0.0000	0.0000	0.0000	0.0000	0.0000
186	FLL7	-0.6162	-0.3332	-0.2169	0.0000	0.0000	0.0000	0.0000	0.0000
186	FLL8	0.1476	0.0001	0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
186	FLL9	0.2017	-0.0003	0.0175	0.0000	0.0000	0.0000	0.0000	0.0000
187	Selfweight	-1.6497	-0.0830	0.1282	0.0000	0.0000	0.0000	0.0000	0.0000
187	SuperDC	-12.0591	-18.0489	9.2491	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL1	-8.0174	-6.5143	3.2701	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL2	-6.2619	-5.3701	2.7155	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL3	-6.7951	-6.1715	3.0402	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL4	-4.4763	-4.7117	2.3545	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL5	-4.0703	-4.7134	2.3762	0.0000	0.0000	0.0000	0.0000	0.0000
187	LL6	0.9539	-0.0036	0.0532	0.0000	0.0000	0.0000	0.0000	0.0000
187	Eq4	-14.9011	-4.0374	6.5288	-0.7307	0.2184	-0.1797	-0.1978	0.6817
187	FLL1	-0.6246	-0.8150	0.4092	0.0000	0.0000	0.0000	0.0000	0.0000
187	FLL2	-1.2561	-0.8117	0.3997	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
187	FLL3	-0.0861	0.0027	-0.0051	0.0000	0.0000	0.0000	0.0000	0.0000
187	FLL4	0.2531	-0.0008	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000
187	FLL5	0.1766	-0.0007	0.0099	0.0000	0.0000	0.0000	0.0000	0.0000
187	FLL6	-1.5807	-1.3025	0.6524	0.0000	0.0000	0.0000	0.0000	0.0000
187	FLL7	-0.7134	-0.3211	0.1487	0.0000	0.0000	0.0000	0.0000	0.0000
187	FLL8	0.1744	0.0004	0.0082	0.0000	0.0000	0.0000	0.0000	0.0000
187	FLL9	0.2746	-0.0010	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000
188	Selfweight	-0.7247	-0.1121	0.2577	0.0000	0.0000	0.0000	0.0000	0.0000
188	SuperDC	5.5857	3.8361	-0.6078	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL1	-1.8225	1.4021	-0.2588	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL2	-1.1053	1.1486	-0.2010	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL3	-1.1774	1.3230	-0.2571	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL4	-0.0976	1.0046	-0.1911	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL5	0.4117	1.0061	-0.1726	0.0000	0.0000	0.0000	0.0000	0.0000
188	LL6	1.1678	-0.0009	0.0325	0.0000	0.0000	0.0000	0.0000	0.0000
188	Eq4	-0.0068	0.3516	0.6035	0.3526	0.2856	0.0264	0.0111	0.4993
188	FLL1	0.1300	0.1746	-0.0406	0.0000	0.0000	0.0000	0.0000	0.0000
188	FLL2	-0.4977	0.1751	-0.0266	0.0000	0.0000	0.0000	0.0000	0.0000
188	FLL3	-0.0976	-0.0015	0.0049	0.0000	0.0000	0.0000	0.0000	0.0000
188	FLL4	0.2930	-0.0014	0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
188	FLL5	0.2163	-0.0002	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000
188	FLL6	-0.3483	0.2803	-0.0522	0.0000	0.0000	0.0000	0.0000	0.0000
188	FLL7	-0.4352	0.0691	-0.0046	0.0000	0.0000	0.0000	0.0000	0.0000
188	FLL8	0.1972	-0.0021	0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
188	FLL9	0.3276	-0.0009	0.0068	0.0000	0.0000	0.0000	0.0000	0.0000
189	Selfweight	0.1618	-0.1393	0.1338	0.0000	0.0000	0.0000	0.0000	0.0000
189	SuperDC	3.4528	-2.0034	-0.8755	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL1	-0.6855	-0.3761	0.4920	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL2	-0.9360	-0.4463	0.0794	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL3	-1.8041	-0.6390	-0.2061	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL4	-0.7493	-0.5178	-0.2391	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL5	-0.1011	-0.5092	-0.1946	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL6	1.3156	0.0024	0.0327	0.0000	0.0000	0.0000	0.0000	0.0000
189	Eq4	2.9094	0.1789	0.4848	0.5010	0.2621	0.3213	0.1448	0.5330
189	FLL1	0.2814	-0.0393	0.0706	0.0000	0.0000	0.0000	0.0000	0.0000
189	FLL2	-0.5466	-0.0839	-0.0181	0.0000	0.0000	0.0000	0.0000	0.0000
189	FLL3	-0.3737	-0.0501	-0.1148	0.0000	0.0000	0.0000	0.0000	0.0000
189	FLL4	0.2688	-0.0057	-0.0148	0.0000	0.0000	0.0000	0.0000	0.0000
189	FLL5	0.2436	0.0004	0.0061	0.0000	0.0000	0.0000	0.0000	0.0000
189	FLL6	-0.1544	-0.0806	0.0854	0.0000	0.0000	0.0000	0.0000	0.0000
189	FLL7	-0.7571	-0.0893	-0.1320	0.0000	0.0000	0.0000	0.0000	0.0000
189	FLL8	0.0481	-0.0267	-0.0648	0.0000	0.0000	0.0000	0.0000	0.0000
189	FLL9	0.3354	-0.0032	-0.0040	0.0000	0.0000	0.0000	0.0000	0.0000
190	Selfweight	0.4401	-0.1528	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000
190	SuperDC	-10.2790	-41.2542	-25.4126	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL1	-0.5964	-2.4853	-1.3771	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL2	-2.7433	-6.1133	-3.8080	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL3	-5.9739	-13.2396	-8.0456	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL4	-4.2845	-10.4065	-6.4472	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
190	LL5	-3.5007	-10.3967	-6.3823	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL6	1.4027	-0.0022	0.0309	0.0000	0.0000	0.0000	0.0000	0.0000
190	Eq4	1.4633	-4.8389	-0.9642	-0.4678	0.1656	0.2606	1.5662	1.1996
190	FLL1	0.3867	0.0029	0.0124	0.0000	0.0000	0.0000	0.0000	0.0000
190	FLL2	-1.0777	-1.7879	-1.0731	0.0000	0.0000	0.0000	0.0000	0.0000
190	FLL3	-1.0967	-1.7970	-1.1267	0.0000	0.0000	0.0000	0.0000	0.0000
190	FLL4	0.2110	-0.0078	-0.0335	0.0000	0.0000	0.0000	0.0000	0.0000
190	FLL5	0.2598	-0.0004	0.0057	0.0000	0.0000	0.0000	0.0000	0.0000
190	FLL6	-0.2193	-0.7119	-0.4077	0.0000	0.0000	0.0000	0.0000	0.0000
190	FLL7	-1.7889	-2.8663	-1.7550	0.0000	0.0000	0.0000	0.0000	0.0000
190	FLL8	-0.3124	-0.7271	-0.4904	0.0000	0.0000	0.0000	0.0000	0.0000
190	FLL9	0.3164	-0.0015	-0.0143	0.0000	0.0000	0.0000	0.0000	0.0000
191	Selfweight	0.3372	-0.1368	-0.0763	0.0000	0.0000	0.0000	0.0000	0.0000
191	SuperDC	-7.3956	-37.7412	14.9619	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL1	0.0359	-2.2476	1.1460	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL2	-2.4856	-5.7509	1.9592	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL3	-4.6122	-11.8525	5.2781	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL4	-3.6348	-9.5023	3.7433	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL5	-2.7003	-9.5049	3.8220	0.0000	0.0000	0.0000	0.0000	0.0000
191	LL6	1.4511	-0.0057	0.0202	0.0000	0.0000	0.0000	0.0000	0.0000
191	Eq4	-16.0427	-6.8844	5.3193	-0.0116	0.2415	-0.2744	-0.7174	0.7881
191	FLL1	0.4247	-0.0023	0.0113	0.0000	0.0000	0.0000	0.0000	0.0000
191	FLL2	-0.8597	-1.5902	0.7406	0.0000	0.0000	0.0000	0.0000	0.0000
191	FLL3	-1.0278	-1.6374	0.6304	0.0000	0.0000	0.0000	0.0000	0.0000
191	FLL4	0.1096	-0.0513	-0.0958	0.0000	0.0000	0.0000	0.0000	0.0000
191	FLL5	0.2687	-0.0011	0.0037	0.0000	0.0000	0.0000	0.0000	0.0000
191	FLL6	-0.0748	-0.6398	0.3151	0.0000	0.0000	0.0000	0.0000	0.0000
191	FLL7	-1.5419	-2.5604	1.1265	0.0000	0.0000	0.0000	0.0000	0.0000
191	FLL8	-0.4025	-0.7159	0.1400	0.0000	0.0000	0.0000	0.0000	0.0000
191	FLL9	0.2677	-0.0218	-0.0369	0.0000	0.0000	0.0000	0.0000	0.0000
192	Selfweight	-0.3189	-0.1055	-0.1849	0.0000	0.0000	0.0000	0.0000	0.0000
192	SuperDC	5.4413	6.4073	-0.0429	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL1	1.2589	0.1682	-0.0231	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL2	-0.8835	1.4218	0.1060	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL3	0.0559	1.2203	-0.2358	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL4	-0.5733	1.5848	-0.0649	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL5	0.7505	1.5796	0.0260	0.0000	0.0000	0.0000	0.0000	0.0000
192	LL6	1.4009	-0.0065	-0.0226	0.0000	0.0000	0.0000	0.0000	0.0000
192	Eq4	-9.2190	0.7452	0.6004	0.2934	0.3075	-0.0965	-0.0523	0.5980
192	FLL1	0.4375	-0.0017	-0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
192	FLL2	-0.1717	0.1284	-0.0338	0.0000	0.0000	0.0000	0.0000	0.0000
192	FLL3	-0.5142	0.2803	-0.0066	0.0000	0.0000	0.0000	0.0000	0.0000
192	FLL4	-0.0596	0.1495	0.0211	0.0000	0.0000	0.0000	0.0000	0.0000
192	FLL5	0.2594	-0.0012	-0.0042	0.0000	0.0000	0.0000	0.0000	0.0000
192	FLL6	0.2427	0.0493	-0.0102	0.0000	0.0000	0.0000	0.0000	0.0000
192	FLL7	-0.5482	0.2675	-0.0474	0.0000	0.0000	0.0000	0.0000	0.0000
192	FLL8	-0.3671	0.2920	0.0317	0.0000	0.0000	0.0000	0.0000	0.0000
192	FLL9	0.1397	0.0582	-0.0162	0.0000	0.0000	0.0000	0.0000	0.0000
193	Selfweight	-0.7568	-0.0930	0.0377	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
193	SuperDC	-8.2243	-15.5635	-5.8718	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL1	1.5085	-0.0383	0.0537	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL2	-5.1126	-4.3506	-1.7986	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL3	-0.3575	-1.3680	-0.2009	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL4	-4.0404	-3.7713	-1.4264	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL5	-2.2192	-3.7713	-1.3568	0.0000	0.0000	0.0000	0.0000	0.0000
193	LL6	1.1884	0.0110	-0.0443	0.0000	0.0000	0.0000	0.0000	0.0000
193	Eq4	2.5075	-1.4198	3.4953	-0.4600	0.2247	0.1424	0.1395	0.6802
193	FLL1	0.3838	-0.0003	-0.0151	0.0000	0.0000	0.0000	0.0000	0.0000
193	FLL2	0.0044	-0.0276	0.0571	0.0000	0.0000	0.0000	0.0000	0.0000
193	FLL3	-1.0792	-0.6728	-0.2409	0.0000	0.0000	0.0000	0.0000	0.0000
193	FLL4	-0.8615	-0.6428	-0.3120	0.0000	0.0000	0.0000	0.0000	0.0000
193	FLL5	0.2201	0.0020	-0.0082	0.0000	0.0000	0.0000	0.0000	0.0000
193	FLL6	0.3037	-0.0110	0.0160	0.0000	0.0000	0.0000	0.0000	0.0000
193	FLL7	-0.5749	-0.3023	-0.0271	0.0000	0.0000	0.0000	0.0000	0.0000
193	FLL8	-1.4947	-1.0423	-0.4603	0.0000	0.0000	0.0000	0.0000	0.0000
193	FLL9	-0.2939	-0.2498	-0.1284	0.0000	0.0000	0.0000	0.0000	0.0000
194	Selfweight	-0.0857	-0.1101	0.2053	0.0000	0.0000	0.0000	0.0000	0.0000
194	SuperDC	-4.8570	-14.8075	8.1173	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL1	1.5616	0.0027	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL2	-4.2661	-4.1719	2.3506	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL3	0.5687	-1.1051	0.6598	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL4	-3.1674	-3.5335	1.9846	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL5	-1.0812	-3.5427	2.0011	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL6	0.8407	-0.0478	-0.0597	0.0000	0.0000	0.0000	0.0000	0.0000
194	Eq4	-0.6949	-3.5392	4.4414	-0.2377	0.2153	-0.0251	-0.1404	0.6037
194	FLL1	0.2908	-0.0005	-0.0166	0.0000	0.0000	0.0000	0.0000	0.0000
194	FLL2	0.1813	0.0048	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000
194	FLL3	-0.8323	-0.6286	0.3705	0.0000	0.0000	0.0000	0.0000	0.0000
194	FLL4	-0.8785	-0.6421	0.3437	0.0000	0.0000	0.0000	0.0000	0.0000
194	FLL5	0.1557	-0.0088	-0.0111	0.0000	0.0000	0.0000	0.0000	0.0000
194	FLL6	0.3274	0.0012	-0.0039	0.0000	0.0000	0.0000	0.0000	0.0000
194	FLL7	-0.2540	-0.2452	0.1678	0.0000	0.0000	0.0000	0.0000	0.0000
194	FLL8	-1.3567	-1.0155	0.5680	0.0000	0.0000	0.0000	0.0000	0.0000
194	FLL9	-0.4024	-0.2995	0.0910	0.0000	0.0000	0.0000	0.0000	0.0000
195	Selfweight	0.6429	-0.1305	0.0812	0.0000	0.0000	0.0000	0.0000	0.0000
195	SuperDC	12.1437	4.7877	-1.6265	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL1	1.4943	0.0037	-0.0216	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL2	0.8931	1.1732	-0.3491	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL3	2.3686	0.3213	-0.0098	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL4	1.2834	1.0321	-0.2786	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL5	3.3699	1.0527	-0.2955	0.0000	0.0000	0.0000	0.0000	0.0000
195	LL6	0.2669	0.1447	-0.1730	0.0000	0.0000	0.0000	0.0000	0.0000
195	Eq4	5.5325	0.7149	-2.0768	0.8362	0.2906	0.0716	0.0737	0.3780
195	FLL1	0.2193	0.0012	-0.0123	0.0000	0.0000	0.0000	0.0000	0.0000
195	FLL2	0.2836	-0.0001	0.0182	0.0000	0.0000	0.0000	0.0000	0.0000
195	FLL3	0.0404	0.1761	-0.0339	0.0000	0.0000	0.0000	0.0000	0.0000
195	FLL4	-0.2057	0.2055	-0.0793	0.0000	0.0000	0.0000	0.0000	0.0000
195	FLL5	0.0494	0.0268	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
195	FLL6	0.3227	0.0008	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
195	FLL7	0.2349	0.0699	0.0129	0.0000	0.0000	0.0000	0.0000	0.0000
195	FLL8	-0.1391	0.2939	-0.0916	0.0000	0.0000	0.0000	0.0000	0.0000
195	FLL9	-0.2063	0.3693	0.0895	0.0000	0.0000	0.0000	0.0000	0.0000
196	Selfweight	0.6857	-0.1473	-0.0596	0.0000	0.0000	0.0000	0.0000	0.0000
196	SuperDC	4.5926	-4.8698	-2.1341	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL1	1.3779	-0.0146	-0.0231	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL2	1.4020	-0.2945	0.3230	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL3	2.6023	-0.1102	0.0925	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL4	1.2975	-0.4594	0.1184	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL5	3.0281	-0.6015	-0.0211	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL6	-2.2269	-0.8854	-0.8590	0.0000	0.0000	0.0000	0.0000	0.0000
196	Eq4	1.6082	0.0357	0.0981	0.3602	0.1548	0.2643	0.1761	0.4765
196	FLL1	0.1804	-0.0008	-0.0061	0.0000	0.0000	0.0000	0.0000	0.0000
196	FLL2	0.3105	-0.0062	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
196	FLL3	0.1737	-0.0414	0.0590	0.0000	0.0000	0.0000	0.0000	0.0000
196	FLL4	-0.5038	-0.1944	-0.0753	0.0000	0.0000	0.0000	0.0000	0.0000
196	FLL5	-0.4124	-0.1640	-0.1591	0.0000	0.0000	0.0000	0.0000	0.0000
196	FLL6	0.3026	-0.0035	-0.0044	0.0000	0.0000	0.0000	0.0000	0.0000
196	FLL7	0.3358	-0.0232	0.0283	0.0000	0.0000	0.0000	0.0000	0.0000
196	FLL8	-0.1352	-0.1233	0.0366	0.0000	0.0000	0.0000	0.0000	0.0000
196	FLL9	-1.3357	-1.5949	-0.8347	0.0000	0.0000	0.0000	0.0000	0.0000
197	Selfweight	-0.0089	-0.1518	-0.1772	0.0000	0.0000	0.0000	0.0000	0.0000
197	SuperDC	-10.7405	-44.7892	6.9418	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL1	1.2164	0.0795	-0.0180	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL2	1.7675	-0.1699	0.0897	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL3	2.6003	0.1980	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL4	0.8506	-2.5514	0.4531	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL5	1.5565	-3.5343	0.5512	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL6	-6.4483	-10.6832	1.5097	0.0000	0.0000	0.0000	0.0000	0.0000
197	Eq4	-12.6901	-9.5743	4.7644	-0.4445	0.3528	-0.2304	-0.1759	1.1280
197	FLL1	0.1472	0.0083	-0.0043	0.0000	0.0000	0.0000	0.0000	0.0000
197	FLL2	0.3001	0.0210	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
197	FLL3	0.2727	0.0337	0.0072	0.0000	0.0000	0.0000	0.0000	0.0000
197	FLL4	-1.0046	-1.9725	0.3162	0.0000	0.0000	0.0000	0.0000	0.0000
197	FLL5	-1.1941	-1.9784	0.2796	0.0000	0.0000	0.0000	0.0000	0.0000
197	FLL6	0.2697	0.0176	-0.0037	0.0000	0.0000	0.0000	0.0000	0.0000
197	FLL7	0.3784	0.0327	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000
197	FLL8	-0.2239	-0.7594	0.1341	0.0000	0.0000	0.0000	0.0000	0.0000
197	FLL9	-1.1574	-0.6272	0.3172	0.0000	0.0000	0.0000	0.0000	0.0000
198	Selfweight	-0.5567	-0.0759	-0.1145	0.0000	0.0000	0.0000	0.0000	0.0000
198	SuperDC	3.6074	7.4733	-5.9161	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL1	1.0667	-0.0267	-0.0537	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL2	2.0232	0.0222	-0.0398	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL3	2.4164	-0.0620	-0.0867	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL4	1.9019	0.5028	-0.2721	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL5	2.3534	0.3486	-0.7911	0.0000	0.0000	0.0000	0.0000	0.0000
198	LL6	-3.4261	1.8078	-1.3974	0.0000	0.0000	0.0000	0.0000	0.0000
198	Eq4	-3.4352	1.7524	0.9849	0.0613	0.2337	-0.1777	-0.0586	0.4030



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
198	FLL1	0.1201	-0.0031	-0.0089	0.0000	0.0000	0.0000	0.0000	0.0000
198	FLL2	0.2762	-0.0068	-0.0104	0.0000	0.0000	0.0000	0.0000	0.0000
198	FLL3	0.3017	-0.0084	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
198	FLL4	-0.2287	0.4018	-0.1616	0.0000	0.0000	0.0000	0.0000	0.0000
198	FLL5	-0.6345	0.3348	-0.2588	0.0000	0.0000	0.0000	0.0000	0.0000
198	FLL6	0.2373	-0.0059	-0.0118	0.0000	0.0000	0.0000	0.0000	0.0000
198	FLL7	0.3733	-0.0095	-0.0075	0.0000	0.0000	0.0000	0.0000	0.0000
198	FLL8	0.1284	0.1540	-0.0577	0.0000	0.0000	0.0000	0.0000	0.0000
198	FLL9	-0.5733	0.0783	-0.0823	0.0000	0.0000	0.0000	0.0000	0.0000
199	Selfweight	-0.5567	-0.0759	0.1145	0.0000	0.0000	0.0000	0.0000	0.0000
199	SuperDC	3.6121	7.4730	5.9187	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL1	0.8456	-0.0044	-0.0682	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL2	1.9402	-0.0405	-0.0216	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL3	2.0455	-0.0155	-0.1169	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL4	1.7991	-0.1238	0.0559	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL5	2.0513	1.8828	1.0039	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL6	-3.4261	1.8078	1.3974	0.0000	0.0000	0.0000	0.0000	0.0000
199	Eq4	4.6749	0.5452	2.8048	0.0613	0.2337	0.1777	0.0586	0.4030
199	FLL1	0.0851	0.0004	-0.0103	0.0000	0.0000	0.0000	0.0000	0.0000
199	FLL2	0.2328	-0.0021	-0.0138	0.0000	0.0000	0.0000	0.0000	0.0000
199	FLL3	0.2998	-0.0045	-0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
199	FLL4	-0.1378	-0.0740	0.0946	0.0000	0.0000	0.0000	0.0000	0.0000
199	FLL5	-0.6345	0.3348	0.2588	0.0000	0.0000	0.0000	0.0000	0.0000
199	FLL6	0.1888	-0.0010	-0.0150	0.0000	0.0000	0.0000	0.0000	0.0000
199	FLL7	0.3376	-0.0039	-0.0122	0.0000	0.0000	0.0000	0.0000	0.0000
199	FLL8	0.1800	-0.0337	0.0408	0.0000	0.0000	0.0000	0.0000	0.0000
199	FLL9	-0.4504	0.1524	0.1527	0.0000	0.0000	0.0000	0.0000	0.0000
200	Selfweight	-0.0089	-0.1518	0.1772	0.0000	0.0000	0.0000	0.0000	0.0000
200	SuperDC	-10.7249	-44.7882	-6.9392	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL1	0.5895	0.0430	-0.0601	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL2	1.7854	0.1335	-0.0548	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL3	1.5942	0.1133	-0.1107	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL4	1.7560	0.1550	-0.0386	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL5	-1.8085	-9.9650	-1.6636	0.0000	0.0000	0.0000	0.0000	0.0000
200	LL6	-6.4483	-10.6832	-1.5097	0.0000	0.0000	0.0000	0.0000	0.0000
200	Eq4	9.5114	-4.1991	2.6270	-0.4445	0.3528	0.2304	0.1759	1.1280
200	FLL1	0.0503	0.0028	-0.0072	0.0000	0.0000	0.0000	0.0000	0.0000
200	FLL2	0.1772	0.0134	-0.0140	0.0000	0.0000	0.0000	0.0000	0.0000
200	FLL3	0.2825	0.0207	-0.0071	0.0000	0.0000	0.0000	0.0000	0.0000
200	FLL4	0.0540	0.0254	0.0316	0.0000	0.0000	0.0000	0.0000	0.0000
200	FLL5	-1.1941	-1.9784	-0.2796	0.0000	0.0000	0.0000	0.0000	0.0000
200	FLL6	0.1327	0.0096	-0.0131	0.0000	0.0000	0.0000	0.0000	0.0000
200	FLL7	0.2840	0.0212	-0.0149	0.0000	0.0000	0.0000	0.0000	0.0000
200	FLL8	0.2605	0.0274	0.0106	0.0000	0.0000	0.0000	0.0000	0.0000
200	FLL9	-0.4732	-0.7971	-0.0655	0.0000	0.0000	0.0000	0.0000	0.0000
201	Selfweight	0.6857	-0.1473	0.0596	0.0000	0.0000	0.0000	0.0000	0.0000
201	SuperDC	4.6253	-4.8701	2.1380	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL1	0.3344	0.0016	-0.0442	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL2	1.5489	-0.0180	-0.0773	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
201	LL3	1.1287	-0.0037	-0.0913	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL4	1.6727	-0.0216	-0.0474	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL5	0.8262	-1.0925	0.3188	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL6	-2.2269	-0.8854	0.8590	0.0000	0.0000	0.0000	0.0000	0.0000
201	Eq4	-0.0697	-1.5368	0.7532	0.3602	0.1548	-0.2643	-0.1761	0.4765
201	FLL1	0.0231	0.0009	-0.0028	0.0000	0.0000	0.0000	0.0000	0.0000
201	FLL2	0.1160	-0.0005	-0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
201	FLL3	0.2490	-0.0032	-0.0124	0.0000	0.0000	0.0000	0.0000	0.0000
201	FLL4	0.2472	-0.0083	0.0255	0.0000	0.0000	0.0000	0.0000	0.0000
201	FLL5	-0.4124	-0.1640	0.1591	0.0000	0.0000	0.0000	0.0000	0.0000
201	FLL6	0.0771	0.0003	-0.0096	0.0000	0.0000	0.0000	0.0000	0.0000
201	FLL7	0.2173	-0.0020	-0.0164	0.0000	0.0000	0.0000	0.0000	0.0000
201	FLL8	0.3263	-0.0066	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
201	FLL9	0.0306	-0.0725	0.0865	0.0000	0.0000	0.0000	0.0000	0.0000
202	Selfweight	0.6429	-0.1305	-0.0812	0.0000	0.0000	0.0000	0.0000	0.0000
202	SuperDC	12.1874	4.7871	1.6282	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL1	0.2060	0.0043	-0.0207	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL2	1.3202	0.0127	-0.0436	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL3	0.8659	0.0105	-0.0437	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL4	1.5224	0.0098	-0.0311	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL5	2.0602	1.1826	0.3159	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL6	0.2669	0.1447	0.1730	0.0000	0.0000	0.0000	0.0000	0.0000
202	Eq4	-1.6623	0.7696	-1.5689	0.8362	0.2906	-0.0716	-0.0737	0.3780
202	FLL1	0.0161	0.0001	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
202	FLL2	0.0791	0.0014	-0.0064	0.0000	0.0000	0.0000	0.0000	0.0000
202	FLL3	0.2124	0.0021	-0.0071	0.0000	0.0000	0.0000	0.0000	0.0000
202	FLL4	0.3111	-0.0010	0.0077	0.0000	0.0000	0.0000	0.0000	0.0000
202	FLL5	0.0494	0.0268	0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
202	FLL6	0.0493	0.0009	-0.0045	0.0000	0.0000	0.0000	0.0000	0.0000
202	FLL7	0.1687	0.0022	-0.0089	0.0000	0.0000	0.0000	0.0000	0.0000
202	FLL8	0.3271	0.0013	-0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
202	FLL9	0.2844	0.0100	0.0226	0.0000	0.0000	0.0000	0.0000	0.0000
203	Selfweight	-0.0857	-0.1101	-0.2053	0.0000	0.0000	0.0000	0.0000	0.0000
203	SuperDC	-4.8259	-14.8081	-8.1228	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL1	0.1315	0.0006	-0.0102	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL2	1.1383	-0.0008	-0.0301	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL3	0.6856	0.0000	-0.0293	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL4	1.3647	-0.0020	-0.0316	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL5	-2.6079	-3.6934	-2.1055	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL6	0.8407	-0.0478	0.0597	0.0000	0.0000	0.0000	0.0000	0.0000
203	Eq4	-0.6883	-1.0556	1.9289	-0.2377	0.2153	0.0251	0.1404	0.6037
203	FLL1	0.0103	-0.0001	-0.0015	0.0000	0.0000	0.0000	0.0000	0.0000
203	FLL2	0.0575	0.0002	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
203	FLL3	0.1835	-0.0001	-0.0046	0.0000	0.0000	0.0000	0.0000	0.0000
203	FLL4	0.3269	-0.0010	-0.0009	0.0000	0.0000	0.0000	0.0000	0.0000
203	FLL5	0.1557	-0.0088	0.0111	0.0000	0.0000	0.0000	0.0000	0.0000
203	FLL6	0.0327	0.0001	-0.0024	0.0000	0.0000	0.0000	0.0000	0.0000
203	FLL7	0.1367	0.0001	-0.0045	0.0000	0.0000	0.0000	0.0000	0.0000
203	FLL8	0.3106	-0.0006	-0.0044	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
203	FLL9	0.3450	-0.0048	0.0037	0.0000	0.0000	0.0000	0.0000	0.0000
204	Selfweight	-0.7568	-0.0930	-0.0377	0.0000	0.0000	0.0000	0.0000	0.0000
204	SuperDC	-8.2356	-15.5631	5.8633	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL1	0.0620	-0.0001	-0.0124	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL2	0.8812	-0.0005	-0.0534	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL3	0.4568	-0.0003	-0.0453	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL4	1.0659	-0.0006	-0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL5	-3.8466	-3.8909	1.4101	0.0000	0.0000	0.0000	0.0000	0.0000
204	LL6	1.1884	0.0110	0.0443	0.0000	0.0000	0.0000	0.0000	0.0000
204	Eq4	-4.9049	-3.4123	5.3209	-0.4600	0.2247	-0.1424	-0.1395	0.6802
204	FLL1	-0.0020	0.0000	-0.0026	0.0000	0.0000	0.0000	0.0000	0.0000
204	FLL2	0.0388	0.0000	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000
204	FLL3	0.1444	-0.0001	-0.0081	0.0000	0.0000	0.0000	0.0000	0.0000
204	FLL4	0.2911	-0.0002	-0.0105	0.0000	0.0000	0.0000	0.0000	0.0000
204	FLL5	0.2201	0.0020	0.0082	0.0000	0.0000	0.0000	0.0000	0.0000
204	FLL6	0.0163	0.0000	-0.0030	0.0000	0.0000	0.0000	0.0000	0.0000
204	FLL7	0.1027	-0.0001	-0.0066	0.0000	0.0000	0.0000	0.0000	0.0000
204	FLL8	0.2603	-0.0001	-0.0119	0.0000	0.0000	0.0000	0.0000	0.0000
204	FLL9	0.3426	0.0008	-0.0052	0.0000	0.0000	0.0000	0.0000	0.0000
205	Selfweight	-0.3189	-0.1055	0.1849	0.0000	0.0000	0.0000	0.0000	0.0000
205	SuperDC	5.3794	6.4063	0.0356	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL1	-0.0082	0.0003	-0.0099	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL2	0.5225	-0.0020	-0.0614	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL3	0.1886	0.0003	-0.0403	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL4	0.6442	-0.0017	-0.0698	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL5	-0.6527	1.6112	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
205	LL6	1.4009	-0.0065	0.0226	0.0000	0.0000	0.0000	0.0000	0.0000
205	Eq4	11.0822	1.2511	0.6186	0.2934	0.3075	0.0965	0.0523	0.5980
205	FLL1	-0.0121	0.0003	-0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
205	FLL2	0.0164	-0.0001	-0.0038	0.0000	0.0000	0.0000	0.0000	0.0000
205	FLL3	0.0881	-0.0004	-0.0099	0.0000	0.0000	0.0000	0.0000	0.0000
205	FLL4	0.2161	-0.0008	-0.0139	0.0000	0.0000	0.0000	0.0000	0.0000
205	FLL5	0.2594	-0.0012	0.0042	0.0000	0.0000	0.0000	0.0000	0.0000
205	FLL6	-0.0005	0.0001	-0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
205	FLL7	0.0570	-0.0003	-0.0080	0.0000	0.0000	0.0000	0.0000	0.0000
205	FLL8	0.1769	-0.0007	-0.0149	0.0000	0.0000	0.0000	0.0000	0.0000
205	FLL9	0.2955	-0.0012	-0.0101	0.0000	0.0000	0.0000	0.0000	0.0000
206	Selfweight	0.3372	-0.1368	0.0763	0.0000	0.0000	0.0000	0.0000	0.0000
206	SuperDC	-7.5025	-37.7438	-14.9754	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL1	-0.0424	0.0008	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL2	0.2736	0.0000	-0.0424	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL3	0.0400	0.0020	-0.0161	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL4	0.3656	0.0007	-0.0444	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL5	-3.9268	-9.5164	-3.7723	0.0000	0.0000	0.0000	0.0000	0.0000
206	LL6	1.4511	-0.0057	-0.0202	0.0000	0.0000	0.0000	0.0000	0.0000
206	Eq4	13.8891	-4.9269	0.6313	-0.0116	0.2415	0.2744	0.7174	0.7881
206	FLL1	-0.0120	0.0004	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
206	FLL2	0.0011	0.0000	-0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
206	FLL3	0.0473	-0.0001	-0.0074	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
206	FLL4	0.1560	-0.0005	-0.0124	0.0000	0.0000	0.0000	0.0000	0.0000
206	FLL5	0.2687	-0.0011	-0.0037	0.0000	0.0000	0.0000	0.0000	0.0000
206	FLL6	-0.0085	0.0002	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
206	FLL7	0.0244	0.0000	-0.0058	0.0000	0.0000	0.0000	0.0000	0.0000
206	FLL8	0.1141	-0.0003	-0.0120	0.0000	0.0000	0.0000	0.0000	0.0000
206	FLL9	0.2482	-0.0008	-0.0121	0.0000	0.0000	0.0000	0.0000	0.0000
207	Selfweight	0.4401	-0.1528	-0.0080	0.0000	0.0000	0.0000	0.0000	0.0000
207	SuperDC	-10.4237	-41.2529	25.3965	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL1	-0.0458	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL2	0.1935	0.0061	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL3	0.0117	0.0036	-0.0078	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL4	0.2827	0.0069	-0.0319	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL5	-4.6461	-10.4084	6.4036	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL6	1.4027	-0.0022	-0.0309	0.0000	0.0000	0.0000	0.0000	0.0000
207	Eq4	-4.5257	-8.0743	6.9911	-0.4678	0.1656	-0.2606	-1.5662	1.1996
207	FLL1	-0.0084	0.0000	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000
207	FLL2	-0.0036	0.0004	-0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
207	FLL3	0.0332	0.0010	-0.0058	0.0000	0.0000	0.0000	0.0000	0.0000
207	FLL4	0.1323	0.0016	-0.0103	0.0000	0.0000	0.0000	0.0000	0.0000
207	FLL5	0.2598	-0.0004	-0.0057	0.0000	0.0000	0.0000	0.0000	0.0000
207	FLL6	-0.0093	0.0002	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
207	FLL7	0.0134	0.0008	-0.0045	0.0000	0.0000	0.0000	0.0000	0.0000
207	FLL8	0.0912	0.0016	-0.0096	0.0000	0.0000	0.0000	0.0000	0.0000
207	FLL9	0.2241	0.0011	-0.0113	0.0000	0.0000	0.0000	0.0000	0.0000
208	Selfweight	0.1618	-0.1393	-0.1338	0.0000	0.0000	0.0000	0.0000	0.0000
208	SuperDC	3.2160	-2.0270	0.8223	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL1	-0.0437	0.0000	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL2	0.1317	0.0046	-0.0194	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL3	0.0006	0.0010	-0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL4	0.2209	0.0043	-0.0190	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL5	-1.1783	-0.4836	0.2398	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL6	1.3156	0.0024	-0.0327	0.0000	0.0000	0.0000	0.0000	0.0000
208	Eq4	-1.6890	-0.8160	0.7455	0.5010	0.2621	-0.3213	-0.1448	0.5330
208	FLL1	-0.0037	-0.0004	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
208	FLL2	-0.0069	0.0003	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
208	FLL3	0.0219	0.0008	-0.0036	0.0000	0.0000	0.0000	0.0000	0.0000
208	FLL4	0.1106	0.0014	-0.0071	0.0000	0.0000	0.0000	0.0000	0.0000
208	FLL5	0.2436	0.0004	-0.0061	0.0000	0.0000	0.0000	0.0000	0.0000
208	FLL6	-0.0087	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
208	FLL7	0.0049	0.0007	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
208	FLL8	0.0716	0.0013	-0.0063	0.0000	0.0000	0.0000	0.0000	0.0000
208	FLL9	0.1986	0.0014	-0.0087	0.0000	0.0000	0.0000	0.0000	0.0000
209	Selfweight	-0.7247	-0.1121	-0.2577	0.0000	0.0000	0.0000	0.0000	0.0000
209	SuperDC	5.2110	3.9418	0.6209	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL1	-0.0425	-0.0003	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL2	0.0770	0.0009	-0.0055	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL3	-0.0181	-0.0008	-0.0051	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL4	0.1542	0.0000	-0.0104	0.0000	0.0000	0.0000	0.0000	0.0000
209	LL5	-0.6465	0.8667	0.1042	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
209	LL6	1.1678	-0.0009	-0.0325	0.0000	0.0000	0.0000	0.0000	0.0000
209	Eq4	1.8719	0.8926	0.8070	0.3526	0.2856	-0.0264	-0.0111	0.4993
209	FLL1	-0.0022	-0.0003	-0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
209	FLL2	-0.0087	0.0001	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
209	FLL3	0.0126	0.0002	-0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
209	FLL4	0.0879	0.0002	-0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
209	FLL5	0.2163	-0.0002	-0.0060	0.0000	0.0000	0.0000	0.0000	0.0000
209	FLL6	-0.0086	-0.0001	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
209	FLL7	-0.0012	0.0002	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
209	FLL8	0.0530	0.0003	-0.0021	0.0000	0.0000	0.0000	0.0000	0.0000
209	FLL9	0.1676	0.0001	-0.0052	0.0000	0.0000	0.0000	0.0000	0.0000
210	Selfweight	-1.6497	-0.0830	-0.1282	0.0000	0.0000	0.0000	0.0000	0.0000
210	SuperDC	-12.9267	-18.5378	-9.4983	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL1	-0.0465	0.0000	-0.0013	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL2	0.0503	-0.0004	-0.0046	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL3	-0.0557	-0.0004	-0.0101	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL4	0.0905	-0.0009	-0.0148	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL5	-4.6886	-4.0617	-2.0765	0.0000	0.0000	0.0000	0.0000	0.0000
210	LL6	0.9539	-0.0036	-0.0532	0.0000	0.0000	0.0000	0.0000	0.0000
210	Eq4	11.0634	-1.8168	3.5314	-0.7307	0.2184	0.1797	0.1978	0.6817
210	FLL1	-0.0090	-0.0001	-0.0021	0.0000	0.0000	0.0000	0.0000	0.0000
210	FLL2	-0.0068	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
210	FLL3	0.0101	0.0000	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
210	FLL4	0.0704	-0.0003	-0.0037	0.0000	0.0000	0.0000	0.0000	0.0000
210	FLL5	0.1766	-0.0007	-0.0099	0.0000	0.0000	0.0000	0.0000	0.0000
210	FLL6	-0.0101	0.0000	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
210	FLL7	-0.0004	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
210	FLL8	0.0421	-0.0002	-0.0021	0.0000	0.0000	0.0000	0.0000	0.0000
210	FLL9	0.1357	-0.0005	-0.0074	0.0000	0.0000	0.0000	0.0000	0.0000
211	Selfweight	-1.7478	-0.0830	0.1047	0.0000	0.0000	0.0000	0.0000	0.0000
211	SuperDC	-13.8617	-18.9035	10.7126	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL1	-0.0502	0.0003	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL2	0.0257	-0.0001	-0.0062	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL3	-0.0968	0.0009	-0.0081	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL4	0.0212	0.0004	-0.0159	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL5	-4.8833	-4.1706	2.3203	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL6	0.6865	-0.0015	-0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
211	Eq4	7.5395	-4.2183	6.5507	-0.7738	0.2030	-0.1358	-0.2926	0.6841
211	FLL1	-0.0175	0.0002	-0.0016	0.0000	0.0000	0.0000	0.0000	0.0000
211	FLL2	-0.0040	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
211	FLL3	0.0085	-0.0001	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
211	FLL4	0.0507	-0.0002	-0.0050	0.0000	0.0000	0.0000	0.0000	0.0000
211	FLL5	0.1271	-0.0003	-0.0121	0.0000	0.0000	0.0000	0.0000	0.0000
211	FLL6	-0.0117	0.0001	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
211	FLL7	0.0016	-0.0001	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
211	FLL8	0.0306	-0.0001	-0.0030	0.0000	0.0000	0.0000	0.0000	0.0000
211	FLL9	0.0978	-0.0002	-0.0094	0.0000	0.0000	0.0000	0.0000	0.0000
212	Selfweight	-1.1256	-0.1123	0.2012	0.0000	0.0000	0.0000	0.0000	0.0000
212	SuperDC	3.2077	2.8693	-1.0129	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)		Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
212	LL1	-0.0457	0.0005	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL2	0.0035	0.0006	-0.0044	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL3	-0.1105	0.0021	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL4	-0.0289	0.0020	-0.0081	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL5	-1.0997	0.7821	-0.1282	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL6	0.4192	0.0019	-0.0628	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	Eq4	19.0306	-0.0792	0.2518	0.4368	0.2913	-0.0083	-0.0399	0.4769	0.0000
212	FLL1	-0.0202	0.0004	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	FLL2	-0.0019	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	FLL3	0.0057	0.0000	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	FLL4	0.0302	0.0002	-0.0048	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	FLL5	0.0776	0.0004	-0.0116	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	FLL6	-0.0111	0.0001	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	FLL7	0.0023	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	FLL8	0.0181	0.0001	-0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
212	FLL9	0.0591	0.0003	-0.0091	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	Selfweight	-0.4455	-0.1288	0.1328	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	SuperDC	5.4593	2.9840	2.2168	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL1	-0.0303	0.0003	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL2	-0.0064	0.0006	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL3	-0.0825	0.0014	0.0127	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL4	-0.0393	0.0017	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL5	-0.2962	-0.0646	0.3141	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL6	0.1949	0.0030	-0.0463	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	Eq4	19.4611	0.7643	-0.4375	0.5833	0.3087	0.3124	0.0540	0.5501	0.0000
213	FLL1	-0.0151	0.0003	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	FLL2	-0.0006	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	FLL3	0.0028	0.0000	-0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	FLL4	0.0134	0.0003	-0.0033	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	FLL5	0.0361	0.0006	-0.0086	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	FLL6	-0.0076	0.0001	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	FLL7	0.0017	0.0000	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	FLL8	0.0079	0.0002	-0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
213	FLL9	0.0270	0.0005	-0.0065	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	Selfweight	-0.1021	-0.1263	0.0508	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	SuperDC	-6.9032	-32.0832	-15.0968	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL1	-0.0134	-0.0003	0.0048	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL2	-0.0053	0.0002	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL3	-0.0391	-0.0006	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL4	-0.0229	0.0002	0.0073	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL5	-0.2551	-0.9325	-0.4300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL6	0.0637	0.0041	-0.0259	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	Eq4	15.9878	-4.3049	-0.7106	-0.2901	0.3250	0.4493	0.6313	0.8177	0.0000
214	FLL1	-0.0072	-0.0001	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	FLL2	-0.0001	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	FLL3	0.0010	0.0001	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	FLL4	0.0041	0.0003	-0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	FLL5	0.0118	0.0008	-0.0048	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
214	FLL6	-0.0034	-0.0001	0.0012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
214	FLL7	0.0008	0.0000	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
214	FLL8	0.0024	0.0002	-0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
214	FLL9	0.0086	0.0006	-0.0035	0.0000	0.0000	0.0000	0.0000	0.0000
215	Selfweight	-0.0159	-0.1242	0.0165	0.0000	0.0000	0.0000	0.0000	0.0000
215	SuperDC	-12.2875	-38.0299	21.4225	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL1	-0.0049	-0.0010	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL2	-0.0024	-0.0003	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL3	-0.0148	-0.0028	0.0091	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL4	-0.0095	-0.0014	0.0057	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL5	-0.3397	-1.1145	0.6227	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL6	0.0183	0.0060	-0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
215	Eq4	-3.8349	-7.9824	6.9913	-0.9258	0.3072	-0.0375	-1.4176	1.3664
215	FLL1	-0.0027	-0.0005	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
215	FLL2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
215	FLL3	0.0003	0.0001	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
215	FLL4	0.0011	0.0004	-0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
215	FLL5	0.0034	0.0011	-0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
215	FLL6	-0.0012	-0.0003	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
215	FLL7	0.0003	0.0001	-0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
215	FLL8	0.0006	0.0002	-0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
215	FLL9	0.0024	0.0008	-0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
216	Selfweight	-0.0001	-0.1157	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000
216	SuperDC	-2.6022	-1.3899	1.5756	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL1	-0.0014	-0.0008	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL2	-0.0008	-0.0004	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL3	-0.0044	-0.0025	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL4	-0.0029	-0.0017	0.0022	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL5	-0.0670	-0.0382	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000
216	LL6	0.0048	0.0030	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
216	Eq4	-1.0401	-1.1300	1.3599	-0.2415	0.3765	-0.1414	-0.1738	0.5946
216	FLL1	-0.0008	-0.0005	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
216	FLL2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
216	FLL3	0.0001	0.0001	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
216	FLL4	0.0003	0.0002	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
216	FLL5	0.0009	0.0006	-0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
216	FLL6	-0.0004	-0.0002	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
216	FLL7	0.0001	0.0001	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
216	FLL8	0.0002	0.0001	-0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
216	FLL9	0.0006	0.0004	-0.0003	0.0000	0.0000	0.0000	0.0000	0.0000
217	Selfweight	-0.1497	0.4190	-0.2536	0.0000	0.0000	0.0000	0.0000	0.0000
217	SuperDC	-38.9636	8.9335	8.5956	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL1	0.3946	0.9137	-0.6453	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL2	0.2440	1.4550	-0.8711	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL3	0.8424	1.9166	-1.3516	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL4	-1.8293	1.5517	-0.2123	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL5	-2.6261	2.8089	-0.6357	0.0000	0.0000	0.0000	0.0000	0.0000
217	LL6	-10.2951	-0.6382	3.9517	0.0000	0.0000	0.0000	0.0000	0.0000
217	Eq4	0.6088	1.7679	-1.2720	-0.1602	-0.8807	0.2355	1.3973	-1.1690
217	FLL1	0.0476	0.1142	-0.0799	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT : Plate Forces on Center

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
217	FLL2	0.0984	0.2178	-0.1554	0.0000	0.0000	0.0000	0.0000	0.0000
217	FLL3	0.0845	0.1983	-0.1361	0.0000	0.0000	0.0000	0.0000	0.0000
217	FLL4	-1.8185	-0.0860	0.6794	0.0000	0.0000	0.0000	0.0000	0.0000
217	FLL5	-1.9065	-0.1182	0.7318	0.0000	0.0000	0.0000	0.0000	0.0000
217	FLL6	0.0877	0.2019	-0.1427	0.0000	0.0000	0.0000	0.0000	0.0000
217	FLL7	0.1226	0.2716	-0.1924	0.0000	0.0000	0.0000	0.0000	0.0000
217	FLL8	-0.6755	0.0984	0.1842	0.0000	0.0000	0.0000	0.0000	0.0000
217	FLL9	-1.2094	-4.4954	-1.3742	0.0000	0.0000	0.0000	0.0000	0.0000
218	Selfweight	-0.1812	0.4505	-0.2132	0.0000	0.0000	0.0000	0.0000	0.0000
218	SuperDC	-12.5797	-17.4279	-25.3319	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL1	0.0062	0.4780	0.0382	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL2	-0.0447	1.7814	-0.0442	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL3	-0.0055	1.4241	0.0415	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL4	-0.0557	1.8103	-0.0844	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL5	-2.7429	-3.6119	-5.4658	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL6	-2.8251	-8.1083	-5.6526	0.0000	0.0000	0.0000	0.0000	0.0000
218	Eq4	-3.6847	-7.8034	-7.5497	-0.2036	-0.8373	0.2912	0.3853	1.7806
218	FLL1	0.0025	0.0344	0.0064	0.0000	0.0000	0.0000	0.0000	0.0000
218	FLL2	-0.0006	0.1549	0.0061	0.0000	0.0000	0.0000	0.0000	0.0000
218	FLL3	-0.0079	0.2856	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
218	FLL4	-0.0235	0.1579	-0.0617	0.0000	0.0000	0.0000	0.0000	0.0000
218	FLL5	-0.5232	-1.5015	-1.0468	0.0000	0.0000	0.0000	0.0000	0.0000
218	FLL6	0.0013	0.1085	0.0082	0.0000	0.0000	0.0000	0.0000	0.0000
218	FLL7	-0.0045	0.2674	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
218	FLL8	-0.0178	0.3147	-0.0366	0.0000	0.0000	0.0000	0.0000	0.0000
218	FLL9	-0.2284	-0.4798	-0.4711	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft) Result Cases

LLMaxMin	Fatigue	Strl Max
ExtremeEvent1	Fatigue I	

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
1	LL6	0.0261	0.1296	-0.0471	0.0000	0.0000	0.0000	0.0000	0.0000
1	Strl Max	-6.8376	-22.6092	11.0967	0.0000	0.0000	0.0000	0.0000	0.0000
2	ExtremeEvent	-0.8704	-54.5685	-7.5057	1.2386	6.7091	0.3903	-0.4497	3.6090
2	LL6	0.0081	0.3458	0.0941	0.0000	0.0000	0.0000	0.0000	0.0000
3	Strl Max	-3.1283	-22.2024	-19.1784	0.0000	0.0000	0.0000	0.0000	0.0000
3	LL6	0.0508	0.1337	0.1552	0.0000	0.0000	0.0000	0.0000	0.0000
4	LL6	-0.0837	0.1037	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
4	Strl Max	-3.7960	-25.7338	14.2615	0.0000	0.0000	0.0000	0.0000	0.0000
5	Strl Max	1.8124	-29.2728	-17.3694	0.0000	0.0000	0.0000	0.0000	0.0000
5	ExtremeEvent	31.6581	-0.2167	2.6529	0.5530	4.2691	1.6069	1.9333	1.9303
6	LL1	6.6140	0.2874	-0.1064	0.0000	0.0000	0.0000	0.0000	0.0000
6	ExtremeEvent	28.1907	-0.6537	1.5944	0.2380	0.4535	0.7002	0.1185	-1.4040
7	Strl Max	26.3742	4.0321	-1.7506	0.0000	0.0000	0.0000	0.0000	0.0000
7	LL1	6.5203	0.2305	0.1483	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
8	FLL3	0.2952	-0.2662	-0.0170	0.0000	0.0000	0.0000	0.0000	0.0000
8	ExtremeEvent	-8.4137	-32.2184	19.2013	0.0497	3.3628	-1.2929	-1.2627	1.0839
9	ExtremeEvent	-6.0429	-29.9968	-12.7528	0.8915	4.7112	0.0363	0.9727	0.4998
9	LL6	-0.2471	0.0711	0.2642	0.0000	0.0000	0.0000	0.0000	0.0000
10	FLL5	-0.0988	-0.0140	0.0162	0.0000	0.0000	0.0000	0.0000	0.0000
10	Strl Max	-1.4857	-21.5619	23.7217	0.0000	0.0000	0.0000	0.0000	0.0000
11	ExtremeEvent	0.6112	-21.2776	-3.4313	1.5196	6.3970	0.2253	-0.4432	3.6613
11	Strl Max	-3.3539	-48.4613	0.9071	0.0000	0.0000	0.0000	0.0000	0.0000
12	Strl Max	2.0965	-19.1148	-8.7496	0.0000	0.0000	0.0000	0.0000	0.0000
12	ExtremeEvent	14.8536	-2.4985	2.5793	0.3179	3.2655	1.2087	1.0923	0.7116
13	ExtremeEvent	14.2558	7.0129	-3.4233	0.0452	0.0530	0.0368	-0.0116	-1.9091
13	LL3	1.1083	0.7344	0.2322	0.0000	0.0000	0.0000	0.0000	0.0000
14	FLL9	0.5073	-0.4309	-0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
14	ExtremeEvent	-16.7958	-34.1372	19.7556	0.4371	3.7479	-1.1119	-1.3687	1.6818
15	Strl Max	-5.8731	-20.1249	-15.8312	0.0000	0.0000	0.0000	0.0000	0.0000
15	LL1	-0.4809	-0.1729	0.1115	0.0000	0.0000	0.0000	0.0000	0.0000
16	LL1	-0.2631	0.1176	-0.2425	0.0000	0.0000	0.0000	0.0000	0.0000
16	Strl Max	-6.5030	-23.3860	14.9844	0.0000	0.0000	0.0000	0.0000	0.0000
17	Strl Max	-11.7292	-28.6333	-15.8706	0.0000	0.0000	0.0000	0.0000	0.0000
17	FLL1	-0.1644	-0.0135	-0.0411	0.0000	0.0000	0.0000	0.0000	0.0000
18	LL1	-0.9745	0.0250	-0.0133	0.0000	0.0000	0.0000	0.0000	0.0000
18	Strl Max	9.7295	5.7711	4.3795	0.0000	0.0000	0.0000	0.0000	0.0000
19	Strl Max	11.8829	6.2553	-5.1409	0.0000	0.0000	0.0000	0.0000	0.0000
19	FLL4	0.2508	0.0361	0.0417	0.0000	0.0000	0.0000	0.0000	0.0000
20	LL1	-0.5356	0.0912	-0.0704	0.0000	0.0000	0.0000	0.0000	0.0000
20	ExtremeEvent	-18.9657	-33.5249	19.2259	0.3215	3.8078	-1.3510	-1.5841	1.7966
21	Strl Max	-5.3818	-24.1389	-16.0143	0.0000	0.0000	0.0000	0.0000	0.0000
21	LL3	-0.3138	0.1979	0.1611	0.0000	0.0000	0.0000	0.0000	0.0000
22	LL2	-0.2136	0.1953	-0.3179	0.0000	0.0000	0.0000	0.0000	0.0000
22	Strl Max	-5.9061	-20.1817	15.8472	0.0000	0.0000	0.0000	0.0000	0.0000
23	Strl Max	-3.1031	-30.4783	-15.5242	0.0000	0.0000	0.0000	0.0000	0.0000
23	FLL1	0.0026	-0.0045	-0.0077	0.0000	0.0000	0.0000	0.0000	0.0000
24	ExtremeEvent	12.3153	7.0640	-1.2504	0.0452	0.0530	-0.0368	0.0116	-1.9091
24	Strl Max	21.7065	9.9121	1.5342	0.0000	0.0000	0.0000	0.0000	0.0000
25	LL3	-0.0132	0.1483	-0.1301	0.0000	0.0000	0.0000	0.0000	0.0000
25	ExtremeEvent	-17.6111	-25.5552	15.2254	0.3179	3.2655	-1.2087	-1.0923	0.7116
26	ExtremeEvent	-7.0411	-46.7658	-2.9423	1.5196	6.3970	-0.2253	0.4432	3.6613
26	Strl Max	-4.4496	-38.3174	0.6527	0.0000	0.0000	0.0000	0.0000	0.0000
27	Strl Max	-1.8157	-21.2549	-22.9153	0.0000	0.0000	0.0000	0.0000	0.0000
27	LL4	-0.0956	0.1074	0.0473	0.0000	0.0000	0.0000	0.0000	0.0000
28	LL6	-0.2471	0.0711	-0.2642	0.0000	0.0000	0.0000	0.0000	0.0000
28	Strl Max	-3.9059	-25.1250	10.0730	0.0000	0.0000	0.0000	0.0000	0.0000
29	Strl Max	2.7957	-24.4600	-13.6636	0.0000	0.0000	0.0000	0.0000	0.0000
29	FLL2	0.0100	0.0076	0.0041	0.0000	0.0000	0.0000	0.0000	0.0000
30	LL6	-0.9443	0.0054	-0.0333	0.0000	0.0000	0.0000	0.0000	0.0000
30	Strl Max	23.9389	3.9822	1.6004	0.0000	0.0000	0.0000	0.0000	0.0000
31	Strl Max	15.2904	2.7880	-1.3721	0.0000	0.0000	0.0000	0.0000	0.0000
31	LL5	3.7491	0.1663	0.0381	0.0000	0.0000	0.0000	0.0000	0.0000
32	LL3	0.2284	0.1175	-0.0841	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
32	ExtremeEvent	-31.9593	-38.1120	25.1209	0.5530	4.2691	-1.6069	-1.9333	1.9303
33	ExtremeEvent	-11.0733	-31.3071	-13.8445	0.8807	4.8100	0.1864	1.7463	1.1143
33	LL6	-0.0837	0.1037	0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
34	LL6	0.0508	0.1337	-0.1552	0.0000	0.0000	0.0000	0.0000	0.0000
34	Strl Max	-2.4781	-16.6303	15.3067	0.0000	0.0000	0.0000	0.0000	0.0000
35	ExtremeEvent	-0.0538	-25.2178	-6.4917	1.2386	6.7091	-0.3903	0.4497	3.6090
35	Strl Max	-0.5444	-46.3533	0.9286	0.0000	0.0000	0.0000	0.0000	0.0000
36	Strl Max	-5.0577	-16.8448	-8.2158	0.0000	0.0000	0.0000	0.0000	0.0000
36	LL6	0.0261	0.1296	0.0471	0.0000	0.0000	0.0000	0.0000	0.0000
37	LL6	-0.0335	0.1113	-0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
37	Strl Max	5.9110	-27.3638	5.6343	0.0000	0.0000	0.0000	0.0000	0.0000
38	ExtremeEvent	8.3498	-32.8508	-2.3578	0.8223	3.8211	0.2140	-0.3585	0.8867
38	LL6	-0.0475	0.1805	0.0521	0.0000	0.0000	0.0000	0.0000	0.0000
39	ExtremeEvent	3.3008	-23.9007	-9.2893	0.3872	3.6329	-0.0907	1.5833	0.5670
39	LL6	-0.0209	0.1486	0.1120	0.0000	0.0000	0.0000	0.0000	0.0000
40	ExtremeEvent	4.4080	-7.3524	-5.2267	0.8654	3.5266	0.5987	-1.0041	1.1311
40	Strl Max	-0.7386	-24.4829	3.1218	0.0000	0.0000	0.0000	0.0000	0.0000
41	Strl Max	6.5783	-21.0234	-14.8014	0.0000	0.0000	0.0000	0.0000	0.0000
41	LL6	-0.2375	0.0512	0.1816	0.0000	0.0000	0.0000	0.0000	0.0000
42	Strl Max	7.3271	-3.8543	-9.9659	0.0000	0.0000	0.0000	0.0000	0.0000
42	ExtremeEvent	15.7909	0.8423	0.8876	-0.1864	1.4218	0.3391	0.2803	-0.1886
43	FLL7	0.3109	0.0435	-0.0881	0.0000	0.0000	0.0000	0.0000	0.0000
43	ExtremeEvent	4.6293	-2.5667	10.6512	-0.3172	1.2550	-0.3024	-0.1038	-0.3245
44	FLL3	0.0614	-0.1891	-0.0573	0.0000	0.0000	0.0000	0.0000	0.0000
44	ExtremeEvent	4.2170	-23.3503	16.8681	0.1486	2.4172	-0.1822	-1.1364	0.5562
45	ExtremeEvent	0.5350	-30.3281	-6.4304	0.9283	3.5401	-0.2570	0.4596	0.9390
45	LL1	0.5201	-2.2218	0.8980	0.0000	0.0000	0.0000	0.0000	0.0000
46	ExtremeEvent	-2.6220	-16.5591	-4.7441	0.8032	3.7391	0.3303	-2.1082	0.8638
46	Strl Max	-2.9478	-23.5555	3.4204	0.0000	0.0000	0.0000	0.0000	0.0000
47	ExtremeEvent	4.2423	-13.1246	-1.6906	1.5017	3.7251	0.3563	-0.3875	1.1813
47	Strl Max	2.0682	-28.8963	3.5688	0.0000	0.0000	0.0000	0.0000	0.0000
48	Strl Max	4.5661	-16.2660	-12.6521	0.0000	0.0000	0.0000	0.0000	0.0000
48	FLL2	0.1081	-0.2087	0.0734	0.0000	0.0000	0.0000	0.0000	0.0000
49	Strl Max	-3.1710	-0.0265	-0.5078	0.0000	0.0000	0.0000	0.0000	0.0000
49	ExtremeEvent	-0.6817	-0.1438	6.0879	-0.2442	1.3874	0.0747	-0.0375	-0.3687
50	LL6	-0.3673	-0.7822	-0.2094	0.0000	0.0000	0.0000	0.0000	0.0000
50	ExtremeEvent	1.1538	-26.2259	16.7276	0.3078	2.3493	-0.0043	-1.0578	0.6374
51	ExtremeEvent	-3.0021	-26.7270	-9.9239	0.9530	3.2324	-0.3916	1.2596	1.0486
51	LL2	0.1969	-1.9941	0.7855	0.0000	0.0000	0.0000	0.0000	0.0000
52	ExtremeEvent	-2.5687	-9.0914	-3.4474	0.8944	3.2597	0.5047	-1.2771	1.0480
52	Strl Max	-3.9473	-22.0784	5.2566	0.0000	0.0000	0.0000	0.0000	0.0000
53	Strl Max	6.7523	-22.4193	-11.3545	0.0000	0.0000	0.0000	0.0000	0.0000
53	FLL3	-0.1274	-0.1357	0.0076	0.0000	0.0000	0.0000	0.0000	0.0000
54	Strl Max	-3.9206	0.6128	-6.8110	0.0000	0.0000	0.0000	0.0000	0.0000
54	ExtremeEvent	3.2741	1.3843	0.5389	-0.1221	1.2318	0.2997	0.0893	-0.1968
55	LL1	-0.4298	0.0094	-0.1368	0.0000	0.0000	0.0000	0.0000	0.0000
55	ExtremeEvent	-5.7243	-0.4818	8.8046	-0.1221	1.2318	-0.2997	-0.0893	-0.1968
56	LL3	-0.6823	0.0068	-0.2593	0.0000	0.0000	0.0000	0.0000	0.0000
56	ExtremeEvent	0.3107	-26.9932	14.3193	0.3516	2.4567	-0.1303	-1.1057	0.7992

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
57	ExtremeEvent	-2.2313	-27.6932	-9.3033	0.8944	3.2597	-0.5047	1.2771	1.0480
57	LL6	0.8867	-2.5737	0.7833	0.0000	0.0000	0.0000	0.0000	0.0000
58	ExtremeEvent	-3.9865	-8.1167	-1.5935	0.9530	3.2324	0.3916	-1.2596	1.0486
58	Strl Max	-4.2923	-22.0227	7.1201	0.0000	0.0000	0.0000	0.0000	0.0000
59	Strl Max	6.3131	-21.9807	-15.7405	0.0000	0.0000	0.0000	0.0000	0.0000
59	LL6	-0.3673	-0.7822	0.2094	0.0000	0.0000	0.0000	0.0000	0.0000
60	Strl Max	-2.6762	-0.3446	-0.5370	0.0000	0.0000	0.0000	0.0000	0.0000
60	ExtremeEvent	-2.2386	-0.3615	6.0262	-0.2442	1.3874	-0.0747	0.0375	-0.3687
61	LL4	-0.2778	0.1052	-0.1719	0.0000	0.0000	0.0000	0.0000	0.0000
61	ExtremeEvent	-1.3698	-21.0623	14.4736	0.2295	2.3955	-0.1854	-0.8877	0.4592
62	ExtremeEvent	-0.1565	-34.3918	-5.8709	1.5017	3.7251	-0.3563	0.3875	1.1813
62	FLL1	0.0129	0.0152	0.0070	0.0000	0.0000	0.0000	0.0000	0.0000
63	ExtremeEvent	-1.8814	-21.4729	-8.6447	0.8032	3.7391	-0.3303	2.1082	0.8638
63	LL3	0.0208	0.0756	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000
64	ExtremeEvent	-2.0759	-10.5388	-4.5718	0.9283	3.5401	0.2570	-0.4596	0.9390
64	Strl Max	0.0976	-29.3423	1.2251	0.0000	0.0000	0.0000	0.0000	0.0000
65	Strl Max	5.0417	-17.9613	-12.6876	0.0000	0.0000	0.0000	0.0000	0.0000
65	FLL2	0.0026	0.0051	0.0019	0.0000	0.0000	0.0000	0.0000	0.0000
66	Strl Max	6.5443	-1.8334	-6.8747	0.0000	0.0000	0.0000	0.0000	0.0000
66	ExtremeEvent	1.9093	-0.0520	0.1858	-0.3172	1.2550	0.3024	0.1038	-0.3245
67	LL6	-0.3785	0.0154	-0.1424	0.0000	0.0000	0.0000	0.0000	0.0000
67	ExtremeEvent	-8.4545	-5.5470	13.1857	-0.1864	1.4218	-0.3391	-0.2803	-0.1886
68	LL6	-0.2375	0.0512	-0.1816	0.0000	0.0000	0.0000	0.0000	0.0000
68	ExtremeEvent	-2.7791	-27.3835	17.1951	0.6039	2.6924	-0.1776	-1.6036	0.8603
69	ExtremeEvent	-5.5718	-27.0375	-9.8093	0.8654	3.5266	-0.5987	1.0041	1.1311
69	LL5	0.3087	-1.6614	0.2898	0.0000	0.0000	0.0000	0.0000	0.0000
70	ExtremeEvent	-5.4489	-10.5201	-3.7941	0.3872	3.6329	0.0907	-1.5833	0.5670
70	Strl Max	-1.4964	-19.9752	3.6705	0.0000	0.0000	0.0000	0.0000	0.0000
71	ExtremeEvent	2.5124	-14.1330	-1.2652	0.8223	3.8211	-0.2140	0.3585	0.8867
71	Strl Max	6.2057	-26.8346	1.1272	0.0000	0.0000	0.0000	0.0000	0.0000
72	Strl Max	4.3900	-20.2399	-4.1434	0.0000	0.0000	0.0000	0.0000	0.0000
72	LL6	-0.0335	0.1113	0.0085	0.0000	0.0000	0.0000	0.0000	0.0000
73	ExtremeEvent	1.6470	-23.3215	-1.5142	0.2080	2.8818	0.1630	-0.0452	0.6987
73	Strl Max	1.2191	-20.4119	0.1957	0.0000	0.0000	0.0000	0.0000	0.0000
74	ExtremeEvent	5.3807	-24.9482	-3.2676	0.4531	2.7309	0.0439	-0.0640	0.6440
74	Strl Max	4.6495	-27.5518	1.0448	0.0000	0.0000	0.0000	0.0000	0.0000
75	ExtremeEvent	4.2603	-21.4470	-5.4590	0.3327	2.7942	-0.0120	-0.0158	0.8117
75	Strl Max	2.8218	-25.7831	1.8856	0.0000	0.0000	0.0000	0.0000	0.0000
76	ExtremeEvent	-0.5217	-9.2205	-5.1824	0.7225	2.3844	0.2045	0.3354	0.8521
76	Strl Max	0.1674	-15.6628	0.4766	0.0000	0.0000	0.0000	0.0000	0.0000
77	Strl Max	0.3363	-13.7774	-14.3802	0.0000	0.0000	0.0000	0.0000	0.0000
77	LL6	-0.0571	0.0449	0.2118	0.0000	0.0000	0.0000	0.0000	0.0000
78	Strl Max	1.3817	-11.2350	-11.4714	0.0000	0.0000	0.0000	0.0000	0.0000
78	ExtremeEvent	1.8446	-3.2938	1.2414	-0.3524	1.5291	-0.0048	0.3064	0.3119
79	FLL3	-0.0594	0.0364	-0.0689	0.0000	0.0000	0.0000	0.0000	0.0000
79	ExtremeEvent	1.2441	-7.6361	14.3625	-0.4502	1.4727	-0.0743	-0.1636	0.2256
80	FLL3	-0.0502	-0.1497	-0.0964	0.0000	0.0000	0.0000	0.0000	0.0000
80	ExtremeEvent	0.4569	-16.9896	14.0984	0.1780	1.8007	0.0614	-0.1530	0.4913
81	ExtremeEvent	3.1760	-23.7083	-3.4323	0.8141	2.2608	0.0489	-0.2963	0.6607

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
81	Strl Max	2.0206	-22.5175	2.3726	0.0000	0.0000	0.0000	0.0000	0.0000
82	ExtremeEvent	2.4504	-20.4562	-6.9350	0.9157	2.5692	0.1525	-0.1803	1.0183
82	Strl Max	3.3095	-26.4252	0.8820	0.0000	0.0000	0.0000	0.0000	0.0000
83	ExtremeEvent	1.9443	-14.4625	-4.3447	1.0837	2.2844	0.0525	0.1417	0.7075
83	LL1	0.1062	-1.4182	0.6709	0.0000	0.0000	0.0000	0.0000	0.0000
84	Strl Max	-1.0043	-13.3109	-9.0774	0.0000	0.0000	0.0000	0.0000	0.0000
84	LL3	-0.0996	-1.8803	0.3550	0.0000	0.0000	0.0000	0.0000	0.0000
85	Strl Max	-1.3915	-8.2072	-2.7718	0.0000	0.0000	0.0000	0.0000	0.0000
85	ExtremeEvent	-1.7935	-5.3386	6.2602	-0.3197	1.6873	0.1000	-0.0179	0.4536
86	LL6	-0.3873	-0.4536	-0.4019	0.0000	0.0000	0.0000	0.0000	0.0000
86	Strl Max	2.2844	-19.1433	14.8344	0.0000	0.0000	0.0000	0.0000	0.0000
87	ExtremeEvent	0.5850	-19.6020	-3.8527	0.8781	2.1688	-0.0491	-0.2528	0.9272
87	Strl Max	-0.7367	-18.1885	4.1531	0.0000	0.0000	0.0000	0.0000	0.0000
88	ExtremeEvent	-1.1312	-11.8499	-8.1947	0.7915	2.2038	0.2083	0.2261	0.9506
88	LL2	-0.3258	-0.8100	0.9410	0.0000	0.0000	0.0000	0.0000	0.0000
89	Strl Max	3.4110	-20.7987	-8.6385	0.0000	0.0000	0.0000	0.0000	0.0000
89	LL2	-0.2489	-0.5383	0.1421	0.0000	0.0000	0.0000	0.0000	0.0000
90	Strl Max	-4.8715	-3.8290	-4.2245	0.0000	0.0000	0.0000	0.0000	0.0000
90	ExtremeEvent	-2.6699	-1.5877	4.9061	-0.2058	1.4580	-0.0416	0.2653	0.2092
91	LL5	-0.6959	-0.5977	-0.5791	0.0000	0.0000	0.0000	0.0000	0.0000
91	ExtremeEvent	-3.8092	-4.4983	9.1039	-0.2058	1.4580	0.0416	-0.2653	0.2092
92	LL3	-0.0914	0.0388	-0.3497	0.0000	0.0000	0.0000	0.0000	0.0000
92	ExtremeEvent	2.5214	-22.1103	9.3634	0.2149	1.7121	0.0644	-0.0686	0.4511
93	ExtremeEvent	2.1692	-22.9008	-1.8178	0.7915	2.2038	-0.2083	-0.2261	0.9506
93	Strl Max	1.2427	-23.6407	6.4894	0.0000	0.0000	0.0000	0.0000	0.0000
94	ExtremeEvent	-2.0322	-8.6155	-5.9037	0.8781	2.1688	0.0491	0.2528	0.9272
94	LL6	-0.2174	-1.3634	1.4154	0.0000	0.0000	0.0000	0.0000	0.0000
95	Strl Max	1.7265	-19.5415	-14.6650	0.0000	0.0000	0.0000	0.0000	0.0000
95	LL6	-0.3873	-0.4536	0.4019	0.0000	0.0000	0.0000	0.0000	0.0000
96	LL4	-0.0795	-0.0680	-0.2738	0.0000	0.0000	0.0000	0.0000	0.0000
96	ExtremeEvent	-1.3649	-5.4456	9.3156	-0.3197	1.6873	-0.1000	0.0179	0.4536
97	LL4	-0.0800	0.0658	-0.2441	0.0000	0.0000	0.0000	0.0000	0.0000
97	ExtremeEvent	-0.2425	-16.1105	10.6069	0.2021	1.8297	0.1105	-0.1226	0.4763
98	ExtremeEvent	5.0915	-26.7407	-3.2237	1.0837	2.2844	-0.0525	-0.1417	0.7075
98	Strl Max	5.0054	-29.7559	0.8485	0.0000	0.0000	0.0000	0.0000	0.0000
99	ExtremeEvent	3.2871	-22.8406	-6.0362	0.9157	2.5692	-0.1525	0.1803	1.0183
99	Strl Max	4.3214	-31.5164	0.6838	0.0000	0.0000	0.0000	0.0000	0.0000
100	ExtremeEvent	0.0173	-12.4026	-3.5822	0.8141	2.2608	-0.0489	0.2963	0.6607
100	LL5	0.2871	-3.5479	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
101	Strl Max	-0.9472	-13.6293	-11.8868	0.0000	0.0000	0.0000	0.0000	0.0000
101	FLL2	0.0003	0.0034	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000
102	Strl Max	0.1924	-8.4596	-8.6387	0.0000	0.0000	0.0000	0.0000	0.0000
102	ExtremeEvent	-1.4476	-4.3362	1.8026	-0.4502	1.4727	0.0743	0.1636	0.2256
103	LL6	-0.1195	-0.0047	-0.2349	0.0000	0.0000	0.0000	0.0000	0.0000
103	ExtremeEvent	-0.8509	-10.9832	14.9299	-0.3524	1.5291	0.0048	-0.3064	0.3119
104	LL6	-0.0571	0.0449	-0.2118	0.0000	0.0000	0.0000	0.0000	0.0000
104	ExtremeEvent	-0.1961	-18.9929	12.9978	0.4867	1.8439	0.0167	-0.1693	0.5531
105	ExtremeEvent	0.8910	-19.7433	-5.4521	0.7225	2.3844	-0.2045	-0.3354	0.8521
105	Strl Max	0.3315	-17.6578	1.3162	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
106	ExtremeEvent	-0.2097	-15.1514	-8.1939	0.3327	2.7942	0.0120	0.0158	0.8117
106	LL5	-0.0071	-0.8404	0.1909	0.0000	0.0000	0.0000	0.0000	0.0000
107	ExtremeEvent	1.2618	-14.2516	-4.7896	0.4531	2.7309	-0.0439	0.0640	0.6440
107	LL5	0.0483	-0.6973	0.0810	0.0000	0.0000	0.0000	0.0000	0.0000
108	ExtremeEvent	0.6135	-14.4710	-1.7953	0.2080	2.8818	-0.1630	0.0452	0.6987
108	LL5	0.0263	-0.5219	0.0400	0.0000	0.0000	0.0000	0.0000	0.0000
109	ExtremeEvent	2.5707	-19.1449	-5.0322	0.0244	1.9643	0.0341	0.0079	0.6240
109	LL6	0.0020	0.0474	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000
110	ExtremeEvent	4.2098	-25.6643	-4.9472	0.0842	1.9278	-0.0184	-0.0756	0.6624
110	LL6	0.0076	0.0597	0.0558	0.0000	0.0000	0.0000	0.0000	0.0000
111	ExtremeEvent	0.9686	-21.6564	-1.7787	0.2325	1.8189	-0.0652	-0.0621	0.6810
111	Strl Max	5.1433	-29.8443	5.2592	0.0000	0.0000	0.0000	0.0000	0.0000
112	ExtremeEvent	-5.7453	-8.3115	-1.7133	0.5802	1.5342	-0.1208	0.2631	0.7203
112	Strl Max	-1.3338	-14.7014	2.3311	0.0000	0.0000	0.0000	0.0000	0.0000
113	Strl Max	-6.7373	-8.4357	-14.1272	0.0000	0.0000	0.0000	0.0000	0.0000
113	LL6	0.1133	0.0256	0.2101	0.0000	0.0000	0.0000	0.0000	0.0000
114	Strl Max	-2.9188	-19.2400	-14.2103	0.0000	0.0000	0.0000	0.0000	0.0000
114	LL6	0.1843	-0.0070	0.2250	0.0000	0.0000	0.0000	0.0000	0.0000
115	FLL3	-0.0734	0.0302	-0.0362	0.0000	0.0000	0.0000	0.0000	0.0000
115	ExtremeEvent	-3.9635	-12.4339	16.0754	-0.5155	1.1838	-0.0283	-0.0337	0.4434
116	FLL3	-0.1653	-0.0835	-0.0977	0.0000	0.0000	0.0000	0.0000	0.0000
116	Strl Max	-6.6680	-7.5746	12.6199	0.0000	0.0000	0.0000	0.0000	0.0000
117	ExtremeEvent	1.2449	-17.7687	-5.2271	0.6327	1.4025	0.2199	-0.1867	0.5872
117	LL1	-0.3946	-0.9857	0.9881	0.0000	0.0000	0.0000	0.0000	0.0000
118	ExtremeEvent	5.0703	-23.2664	-6.1098	0.7473	1.5056	0.0962	0.0851	0.8461
118	LL1	0.3587	-1.5484	0.6858	0.0000	0.0000	0.0000	0.0000	0.0000
119	ExtremeEvent	1.1061	-17.4758	-1.3528	0.6161	1.4235	-0.1316	0.2792	0.6931
119	Strl Max	5.0045	-30.5790	3.4701	0.0000	0.0000	0.0000	0.0000	0.0000
120	Strl Max	-5.1574	-9.8282	-5.1741	0.0000	0.0000	0.0000	0.0000	0.0000
120	ExtremeEvent	-5.6808	-4.0928	1.3197	0.2224	1.3220	-0.1228	0.0228	0.6084
121	Strl Max	-4.4356	-14.3866	-6.8443	0.0000	0.0000	0.0000	0.0000	0.0000
121	ExtremeEvent	-3.0377	-9.1471	2.9734	-0.3383	1.2494	0.0965	-0.0209	0.5584
122	LL6	-0.0563	-0.1729	-0.3112	0.0000	0.0000	0.0000	0.0000	0.0000
122	Strl Max	0.8503	-20.5632	16.0924	0.0000	0.0000	0.0000	0.0000	0.0000
123	LL6	-0.6867	-0.8330	-1.3659	0.0000	0.0000	0.0000	0.0000	0.0000
123	Strl Max	-3.3689	-10.5886	5.7490	0.0000	0.0000	0.0000	0.0000	0.0000
124	Strl Max	2.2916	-21.4305	-11.9303	0.0000	0.0000	0.0000	0.0000	0.0000
124	LL2	0.0763	-0.3773	0.6627	0.0000	0.0000	0.0000	0.0000	0.0000
125	Strl Max	1.2291	-23.3958	-4.8287	0.0000	0.0000	0.0000	0.0000	0.0000
125	FLL9	-0.1843	-0.7615	0.1882	0.0000	0.0000	0.0000	0.0000	0.0000
126	LL5	-0.2365	-0.2801	-0.6271	0.0000	0.0000	0.0000	0.0000	0.0000
126	ExtremeEvent	-5.1266	-3.3390	8.1292	-0.1323	1.1247	-0.1501	0.1505	0.3841
127	Strl Max	-5.6344	-5.7259	-2.8467	0.0000	0.0000	0.0000	0.0000	0.0000
127	ExtremeEvent	-4.4256	-4.5721	6.0561	-0.1323	1.1247	0.1501	-0.1505	0.3841
128	LL3	0.4933	0.0286	-0.3581	0.0000	0.0000	0.0000	0.0000	0.0000
128	ExtremeEvent	4.4613	-20.3630	5.3160	-0.0072	1.2223	0.0716	-0.0289	0.4894
129	LL3	0.3953	0.0799	-0.2702	0.0000	0.0000	0.0000	0.0000	0.0000
129	Strl Max	2.2999	-21.4310	11.9462	0.0000	0.0000	0.0000	0.0000	0.0000
130	ExtremeEvent	-3.7299	-5.3309	-5.1947	0.7813	1.3064	-0.1463	0.2627	0.6829

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
130	LL6	-0.6867	-0.8330	1.3659	0.0000	0.0000	0.0000	0.0000	0.0000
131	Strl Max	1.2609	-20.2696	-15.9323	0.0000	0.0000	0.0000	0.0000	0.0000
131	LL6	-0.0563	-0.1729	0.3112	0.0000	0.0000	0.0000	0.0000	0.0000
132	LL4	0.3325	-0.0413	-0.2360	0.0000	0.0000	0.0000	0.0000	0.0000
132	ExtremeEvent	-1.6945	-9.7993	11.6499	-0.3383	1.2494	-0.0965	0.0209	0.5584
133	LL4	0.1958	0.0330	-0.2347	0.0000	0.0000	0.0000	0.0000	0.0000
133	ExtremeEvent	0.2271	-10.7111	7.1568	0.2224	1.3220	0.1228	-0.0228	0.6084
134	ExtremeEvent	6.9562	-22.4380	-4.5773	0.6161	1.4235	0.1316	-0.2792	0.6931
134	FLL1	0.0000	0.0043	0.0055	0.0000	0.0000	0.0000	0.0000	0.0000
135	ExtremeEvent	8.4392	-25.1181	-3.4223	0.7473	1.5056	-0.0962	-0.0851	0.8461
135	Strl Max	8.5000	-35.2437	1.9407	0.0000	0.0000	0.0000	0.0000	0.0000
136	LL6	0.3983	0.0042	-0.1098	0.0000	0.0000	0.0000	0.0000	0.0000
136	Strl Max	1.1852	-22.5383	4.3298	0.0000	0.0000	0.0000	0.0000	0.0000
137	Strl Max	-6.8177	-7.9006	-10.5688	0.0000	0.0000	0.0000	0.0000	0.0000
137	FLL2	-0.0024	0.0019	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
138	Strl Max	-3.7890	-15.5633	-11.6536	0.0000	0.0000	0.0000	0.0000	0.0000
138	FLL2	-0.0017	0.0004	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000
139	LL6	0.1843	-0.0070	-0.2250	0.0000	0.0000	0.0000	0.0000	0.0000
139	ExtremeEvent	2.7480	-15.3399	15.7865	-0.4402	1.1837	0.0626	-0.0869	0.4528
140	LL6	0.1133	0.0256	-0.2101	0.0000	0.0000	0.0000	0.0000	0.0000
140	Strl Max	-5.7151	-7.8712	12.5892	0.0000	0.0000	0.0000	0.0000	0.0000
141	ExtremeEvent	3.9964	-12.5017	-5.2616	0.5802	1.5342	0.1208	-0.2631	0.7203
141	LL5	-0.3681	-0.5879	0.5814	0.0000	0.0000	0.0000	0.0000	0.0000
142	ExtremeEvent	5.9755	-17.7066	-9.2642	0.2325	1.8189	0.0652	0.0621	0.6810
142	LL5	0.0364	-0.7222	0.0901	0.0000	0.0000	0.0000	0.0000	0.0000
143	ExtremeEvent	5.5193	-20.3497	-3.7809	0.0842	1.9278	0.0184	0.0756	0.6624
143	Strl Max	5.2251	-25.5994	0.8405	0.0000	0.0000	0.0000	0.0000	0.0000
144	LL6	0.0020	0.0474	-0.0223	0.0000	0.0000	0.0000	0.0000	0.0000
144	Strl Max	3.1296	-19.5875	3.2523	0.0000	0.0000	0.0000	0.0000	0.0000
145	Strl Max	-1.3159	-20.4363	-10.3024	0.0000	0.0000	0.0000	0.0000	0.0000
145	LL6	0.0075	0.0170	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000
146	ExtremeEvent	2.2378	-32.8968	-7.6092	-0.2739	1.1748	-0.0382	0.0504	0.8820
146	LL6	0.0229	0.0258	0.0379	0.0000	0.0000	0.0000	0.0000	0.0000
147	FLL2	-0.0543	-0.0428	-0.0697	0.0000	0.0000	0.0000	0.0000	0.0000
147	Strl Max	6.7192	-36.3004	12.2570	0.0000	0.0000	0.0000	0.0000	0.0000
148	LL1	-0.9576	-0.2979	-0.3557	0.0000	0.0000	0.0000	0.0000	0.0000
148	Strl Max	-3.9366	-8.0288	5.7232	0.0000	0.0000	0.0000	0.0000	0.0000
149	Strl Max	-8.5413	-0.9547	-12.5194	0.0000	0.0000	0.0000	0.0000	0.0000
149	LL6	0.2788	0.0103	0.1564	0.0000	0.0000	0.0000	0.0000	0.0000
150	Strl Max	-9.9057	-27.8553	-18.0356	0.0000	0.0000	0.0000	0.0000	0.0000
150	LL6	0.4446	-0.0044	0.1658	0.0000	0.0000	0.0000	0.0000	0.0000
151	FLL3	-0.0762	0.0079	-0.0248	0.0000	0.0000	0.0000	0.0000	0.0000
151	ExtremeEvent	-9.5981	-17.4654	16.8335	-0.6044	0.7613	-0.1019	0.0791	0.5363
152	FLL3	-0.1713	0.0117	-0.0137	0.0000	0.0000	0.0000	0.0000	0.0000
152	ExtremeEvent	-6.0304	-1.9308	10.4055	0.2664	0.6968	0.0591	-0.0324	0.6400
153	Strl Max	-3.1588	-19.1033	-11.5170	0.0000	0.0000	0.0000	0.0000	0.0000
153	LL1	-0.4346	-0.6155	0.2039	0.0000	0.0000	0.0000	0.0000	0.0000
154	Strl Max	10.4203	-47.4711	-11.6189	0.0000	0.0000	0.0000	0.0000	0.0000
154	LL1	0.2607	-1.9227	0.4051	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
155	FLL4	0.1384	-0.0144	-0.0678	0.0000	0.0000	0.0000	0.0000	0.0000
155	Strl Max	8.9916	-37.9106	14.0453	0.0000	0.0000	0.0000	0.0000	0.0000
156	Strl Max	-10.5694	-3.3525	-0.8714	0.0000	0.0000	0.0000	0.0000	0.0000
156	ExtremeEvent	-10.7462	-1.8985	3.8143	0.2514	0.7538	-0.1126	0.0108	0.7648
157	Strl Max	-6.2151	-19.8231	-12.3899	0.0000	0.0000	0.0000	0.0000	0.0000
157	FLL2	0.0094	0.0461	0.0389	0.0000	0.0000	0.0000	0.0000	0.0000
158	LL6	0.3620	-0.0987	-0.2228	0.0000	0.0000	0.0000	0.0000	0.0000
158	Strl Max	-3.3379	-24.1787	18.6385	0.0000	0.0000	0.0000	0.0000	0.0000
159	LL6	-0.5216	0.0237	-0.5925	0.0000	0.0000	0.0000	0.0000	0.0000
159	Strl Max	-1.1305	0.4406	5.0584	0.0000	0.0000	0.0000	0.0000	0.0000
160	Strl Max	-3.6029	-20.1673	-17.7772	0.0000	0.0000	0.0000	0.0000	0.0000
160	LL2	0.8313	-0.0957	0.2012	0.0000	0.0000	0.0000	0.0000	0.0000
161	Strl Max	3.5712	-29.8095	-1.0326	0.0000	0.0000	0.0000	0.0000	0.0000
161	ExtremeEvent	2.2877	-19.8693	1.6649	-0.2476	0.7490	-0.1103	0.0254	0.4857
162	LL3	1.5652	-0.0383	-0.2125	0.0000	0.0000	0.0000	0.0000	0.0000
162	ExtremeEvent	-11.1321	-2.3387	13.2516	-0.0437	0.6787	-0.1583	0.0107	0.4742
163	Strl Max	-10.3381	-2.9800	-10.9717	0.0000	0.0000	0.0000	0.0000	0.0000
163	FLL4	-0.1000	0.0957	0.0519	0.0000	0.0000	0.0000	0.0000	0.0000
164	LL5	1.4116	-3.8929	-0.5044	0.0000	0.0000	0.0000	0.0000	0.0000
164	ExtremeEvent	9.0506	-22.1636	2.5192	-0.2476	0.7490	0.1103	-0.0254	0.4857
165	LL3	0.7700	0.0263	-0.1936	0.0000	0.0000	0.0000	0.0000	0.0000
165	Strl Max	-3.5781	-20.1675	17.7892	0.0000	0.0000	0.0000	0.0000	0.0000
166	Strl Max	-0.4466	0.5405	-4.4153	0.0000	0.0000	0.0000	0.0000	0.0000
166	LL6	-0.5216	0.0237	0.5925	0.0000	0.0000	0.0000	0.0000	0.0000
167	Strl Max	-1.9347	-23.6307	-18.3943	0.0000	0.0000	0.0000	0.0000	0.0000
167	LL6	0.3620	-0.0987	0.2228	0.0000	0.0000	0.0000	0.0000	0.0000
168	LL4	0.7073	-0.0166	-0.1664	0.0000	0.0000	0.0000	0.0000	0.0000
168	ExtremeEvent	-1.0916	-13.7364	13.9339	-0.3837	0.7565	-0.1140	0.0456	0.6011
169	Strl Max	-5.6038	-3.0624	-0.1998	0.0000	0.0000	0.0000	0.0000	0.0000
169	ExtremeEvent	-0.7824	-3.7055	3.9000	0.2514	0.7538	0.1126	-0.0108	0.7648
170	Strl Max	8.9298	-35.4974	-12.8009	0.0000	0.0000	0.0000	0.0000	0.0000
170	FLL1	-0.0055	0.0016	0.0039	0.0000	0.0000	0.0000	0.0000	0.0000
171	LL4	0.2080	0.0257	-0.0825	0.0000	0.0000	0.0000	0.0000	0.0000
171	Strl Max	9.8464	-47.4705	11.4149	0.0000	0.0000	0.0000	0.0000	0.0000
172	LL6	0.8727	0.0023	-0.0801	0.0000	0.0000	0.0000	0.0000	0.0000
172	Strl Max	-2.5410	-18.0548	10.8521	0.0000	0.0000	0.0000	0.0000	0.0000
173	Strl Max	-8.7998	0.3102	-9.1599	0.0000	0.0000	0.0000	0.0000	0.0000
173	FLL2	-0.0052	0.0007	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000
174	Strl Max	-9.1811	-23.3794	-15.0738	0.0000	0.0000	0.0000	0.0000	0.0000
174	FLL2	-0.0043	0.0001	0.0015	0.0000	0.0000	0.0000	0.0000	0.0000
175	LL6	0.4446	-0.0044	-0.1658	0.0000	0.0000	0.0000	0.0000	0.0000
175	ExtremeEvent	4.4621	-19.7473	16.9390	-0.5782	0.7515	-0.0358	0.0660	0.5311
176	LL6	0.2788	0.0103	-0.1564	0.0000	0.0000	0.0000	0.0000	0.0000
176	Strl Max	-8.7137	-1.0572	10.7798	0.0000	0.0000	0.0000	0.0000	0.0000
177	ExtremeEvent	9.3185	-5.1429	-5.8507	0.5389	0.8398	0.2569	-0.0752	0.7065
177	LL5	-0.3955	-0.1616	0.1740	0.0000	0.0000	0.0000	0.0000	0.0000
178	ExtremeEvent	10.5886	-22.2385	-11.5463	-0.0103	1.0398	0.2676	-0.0283	0.6970
178	LL3	-0.0262	-0.0048	0.0322	0.0000	0.0000	0.0000	0.0000	0.0000
179	LL6	0.0229	0.0258	-0.0379	0.0000	0.0000	0.0000	0.0000	0.0000

RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
179	Strl Max	7.9758	-35.1621	4.9650	0.0000	0.0000	0.0000	0.0000	0.0000
180	LL6	0.0075	0.0170	-0.0137	0.0000	0.0000	0.0000	0.0000	0.0000
180	Strl Max	-0.9533	-14.8736	7.4151	0.0000	0.0000	0.0000	0.0000	0.0000
181	Strl Max	-4.6919	-2.6522	-2.8417	0.0000	0.0000	0.0000	0.0000	0.0000
181	LL6	0.0048	0.0030	0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
182	Strl Max	-22.1577	-68.4841	-38.5447	0.0000	0.0000	0.0000	0.0000	0.0000
182	LL6	0.0183	0.0060	0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
183	FLL2	-0.0379	-0.0006	-0.0119	0.0000	0.0000	0.0000	0.0000	0.0000
183	Strl Max	-12.7667	-57.7983	26.9547	0.0000	0.0000	0.0000	0.0000	0.0000
184	Strl Max	8.5084	5.1840	-4.3263	0.0000	0.0000	0.0000	0.0000	0.0000
184	LL6	0.1949	0.0030	0.0463	0.0000	0.0000	0.0000	0.0000	0.0000
185	FLL7	-0.1974	0.0620	-0.0156	0.0000	0.0000	0.0000	0.0000	0.0000
185	ExtremeEvent	-15.1727	3.5932	1.3904	0.4368	0.2913	0.0083	0.0399	0.4769
186	Strl Max	-29.7724	-34.1359	-19.6707	0.0000	0.0000	0.0000	0.0000	0.0000
186	LL6	0.6865	-0.0015	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
187	FLL3	-0.0861	0.0027	-0.0051	0.0000	0.0000	0.0000	0.0000	0.0000
187	Strl Max	-31.1666	-34.0650	17.4444	0.0000	0.0000	0.0000	0.0000	0.0000
188	Strl Max	2.8869	7.1088	-0.8905	0.0000	0.0000	0.0000	0.0000	0.0000
188	ExtremeEvent	4.8543	4.0756	0.2534	0.3526	0.2856	0.0264	0.0111	0.4993
189	Strl Max	3.2070	-3.5846	-1.3456	0.0000	0.0000	0.0000	0.0000	0.0000
189	LL1	-0.6855	-0.3761	0.4920	0.0000	0.0000	0.0000	0.0000	0.0000
190	Strl Max	-22.7530	-74.9280	-45.8356	0.0000	0.0000	0.0000	0.0000	0.0000
190	LL6	1.4027	-0.0022	0.0309	0.0000	0.0000	0.0000	0.0000	0.0000
191	FLL4	0.1096	-0.0513	-0.0958	0.0000	0.0000	0.0000	0.0000	0.0000
191	Strl Max	-16.8942	-68.0894	27.8436	0.0000	0.0000	0.0000	0.0000	0.0000
192	Strl Max	6.5008	10.0127	-0.6973	0.0000	0.0000	0.0000	0.0000	0.0000
192	ExtremeEvent	-4.0966	7.0470	0.3726	0.2934	0.3075	-0.0965	-0.0523	0.5980
193	Strl Max	-20.1734	-27.1841	-10.4402	0.0000	0.0000	0.0000	0.0000	0.0000
193	FLL2	0.0044	-0.0276	0.0571	0.0000	0.0000	0.0000	0.0000	0.0000
194	LL6	0.8407	-0.0478	-0.0597	0.0000	0.0000	0.0000	0.0000	0.0000
194	Strl Max	-13.6440	-25.9478	14.5168	0.0000	0.0000	0.0000	0.0000	0.0000
195	ExtremeEvent	18.3191	5.3722	-3.6222	0.8362	0.2906	0.0716	0.0737	0.3780
195	FLL9	-0.2063	0.3693	0.0895	0.0000	0.0000	0.0000	0.0000	0.0000
196	Strl Max	2.7006	-7.8208	-4.2454	0.0000	0.0000	0.0000	0.0000	0.0000
196	LL2	1.4020	-0.2945	0.3230	0.0000	0.0000	0.0000	0.0000	0.0000
197	LL1	1.2164	0.0795	-0.0180	0.0000	0.0000	0.0000	0.0000	0.0000
197	ExtremeEvent	-23.4395	-54.5153	11.5291	-0.4445	0.3528	-0.2304	-0.1759	1.1280
198	Strl Max	-2.1822	12.4105	-9.9837	0.0000	0.0000	0.0000	0.0000	0.0000
198	FLL3	0.3017	-0.0084	0.0023	0.0000	0.0000	0.0000	0.0000	0.0000
199	LL3	2.0455	-0.0155	-0.1169	0.0000	0.0000	0.0000	0.0000	0.0000
199	Strl Max	-2.1763	12.4101	9.9870	0.0000	0.0000	0.0000	0.0000	0.0000
200	Strl Max	-16.5820	-73.6138	-11.3638	0.0000	0.0000	0.0000	0.0000	0.0000
200	FLL4	0.0540	0.0254	0.0316	0.0000	0.0000	0.0000	0.0000	0.0000
201	LL3	1.1287	-0.0037	-0.0913	0.0000	0.0000	0.0000	0.0000	0.0000
201	Strl Max	2.7416	-7.8212	4.2502	0.0000	0.0000	0.0000	0.0000	0.0000
202	LL3	0.8659	0.0105	-0.0437	0.0000	0.0000	0.0000	0.0000	0.0000
202	Strl Max	19.6431	7.8903	2.4867	0.0000	0.0000	0.0000	0.0000	0.0000
203	Strl Max	-10.7034	-25.1112	-14.0948	0.0000	0.0000	0.0000	0.0000	0.0000
203	LL6	0.8407	-0.0478	0.0597	0.0000	0.0000	0.0000	0.0000	0.0000



RESULT ENVELOPE :Plate Forces on Center @ In-Plane Shear Fxy (kips/ft)

Plate	Result Case	Membrane Force Fxx (kips/ft)	Membrane Force Fyy (kips/ft)	In-Plane Shear Fxy (kips/ft)	Moment Mxx (kips-ft/ft)	Moment Myy (kips-ft/ft)	Torsion Mxy (kips-ft/ft)	Shear Qx (kips/ft)	Shear Qy (kips/ft)
204	LL4	1.0659	-0.0006	-0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
204	ExtremeEvent	-13.8972	-19.0684	11.1465	-0.4600	0.2247	-0.1424	-0.1395	0.6802
205	LL4	0.6442	-0.0017	-0.0698	0.0000	0.0000	0.0000	0.0000	0.0000
205	ExtremeEvent	16.1427	7.5519	0.8392	0.2934	0.3075	0.0965	0.0523	0.5980
206	Strl Max	-15.8285	-64.0044	-25.2253	0.0000	0.0000	0.0000	0.0000	0.0000
206	FLL1	-0.0120	0.0004	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000
207	LL2	0.1935	0.0061	-0.0320	0.0000	0.0000	0.0000	0.0000	0.0000
207	Strl Max	-20.6103	-69.9718	42.9420	0.0000	0.0000	0.0000	0.0000	0.0000
208	LL6	1.3156	0.0024	-0.0327	0.0000	0.0000	0.0000	0.0000	0.0000
208	ExtremeEvent	1.6888	-2.9824	1.4340	0.5010	0.2621	-0.3213	-0.1448	0.5330
209	LL6	1.1678	-0.0009	-0.0325	0.0000	0.0000	0.0000	0.0000	0.0000
209	ExtremeEvent	6.3582	4.7223	1.1702	0.3526	0.2856	-0.0264	-0.0111	0.4993
210	Strl Max	-26.4255	-30.3840	-15.6671	0.0000	0.0000	0.0000	0.0000	0.0000
210	FLL2	-0.0068	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
211	LL6	0.6865	-0.0015	-0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
211	Strl Max	-28.0577	-31.0316	17.5822	0.0000	0.0000	0.0000	0.0000	0.0000
212	Strl Max	0.6782	4.8149	-1.2389	0.0000	0.0000	0.0000	0.0000	0.0000
212	LL1	-0.0457	0.0005	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
213	LL6	0.1949	0.0030	-0.0463	0.0000	0.0000	0.0000	0.0000	0.0000
213	Strl Max	5.7488	3.4560	3.4867	0.0000	0.0000	0.0000	0.0000	0.0000
214	Strl Max	-9.2030	-41.8937	-19.5600	0.0000	0.0000	0.0000	0.0000	0.0000
214	LL3	-0.0391	-0.0006	0.0135	0.0000	0.0000	0.0000	0.0000	0.0000
215	LL6	0.0183	0.0060	-0.0125	0.0000	0.0000	0.0000	0.0000	0.0000
215	ExtremeEvent	-16.1382	-46.1365	28.4304	-0.9258	0.3072	-0.0375	-1.4176	1.3664
216	LL6	0.0048	0.0030	-0.0027	0.0000	0.0000	0.0000	0.0000	0.0000
216	ExtremeEvent	-3.6424	-2.6357	2.9370	-0.2415	0.3765	-0.1414	-0.1738	0.5946
217	FLL9	-1.2094	-4.4954	-1.3742	0.0000	0.0000	0.0000	0.0000	0.0000
217	Strl Max	-66.9081	10.5739	17.3430	0.0000	0.0000	0.0000	0.0000	0.0000
218	Strl Max	-20.8949	-35.4112	-41.8234	0.0000	0.0000	0.0000	0.0000	0.0000
218	LL3	-0.0055	1.4241	0.0415	0.0000	0.0000	0.0000	0.0000	0.0000

Gary Yancer

From: Gary Yancer
Sent: Thursday, October 3, 2019 10:55 AM
To: Banks, Emanuel
Cc: Geach, Tony; Hernandez, Michael
Subject: FW: ARDOT BB0610 Pier 1 Cap Review
Attachments: Memo_190927_WhtRiver_Pier1Cap.pdf

Emanuel –

As an update, the attached report and analysis was submitted to the Bridge Division last Friday (9/27). This is the “LARSA plate analysis” we discussed at our 9/25 meeting in Little Rock, which Jacobs indicated would be helpful in their review of the situation. (Note however, it is my understanding that as directed by Rick and Kyle, this report was not sent to Jacobs.)

This analysis – based on the original design data provided after our meeting and utilizing the most conservative LRFD-code friction and cohesion factors along the suspected joint - further supports the fact that the as-built cap meets the design intent from a structural standpoint. According to this analysis, the demand is only 37% of the available capacity, even with the assumed joint conditions.

Later today, we will be submitting an additional analysis that was discussed in a follow-up meeting between our engineer and Rick and Kyle. That report will include a recommendation for sealing the pier cap, as we discussed in the meeting. I will follow up with you after that submittal is made. Call me in the meantime if you have any questions.

Thanks – Gary

Gary D. Yancer, P.E. | Managing Partner



250 N. Hartford Ave,
Columbus, OH 43222
C 614.314.3626
www.cjmahan.com

From: Hernandez, Michael <Michael.Hernandez@parsons.com>
Sent: Thursday, October 3, 2019 10:00 AM
To: Gary Yancer <GYancer@cjmahan.com>; Geach, Tony <Tony.Geach@parsons.com>; Mike Currie <mcurrie@westpatrick.com>; Doug McCrae <DMcCrae@cjmahan.com>
Subject: FW: ARDOT BB0610 Pier 1 Cap Review

Initial report.

Michael Hernandez, PE (CO#45611)
Sr. Project Manager
1554 Mammoth Road
Hazen, AR 72064
Cell: 720.576.6802

From: Gastoni, Vincent <Vincent.Gastoni@parsons.com>
Sent: Friday, September 27, 2019 5:51 PM
To: rick.ellis@ardot.gov; Kyle.Yeary@ardot.gov
Cc: Hernandez, Michael <Michael.Hernandez@parsons.com>
Subject: RE: ARDOT BB0610 Pier 1 Cap Review

Rick/Kyle-Attached please find our interim memo on shear friction evolution at of the Pier 1 construction joint on the White River bridge. A final memorandum will follow and will include an evaluation of the vertical reinforcement stresses, seismic loads and investigation of durability concerns of the joint over the life of the structure. I plan to have this complete by Wednesday, October 2nd. Please let me know if you have any questions on this interim report of additional investigations you would like us to consider.

Regards,

Vincent T. Gastoni, PE

Principal Bridge Engineer,
Principal Project Manager

PARSONS

3433 Broadway Street N.E., Suite 325

Minneapolis, MN 55413

DIR (612) 656-7070 CELL (612) 309-3707

vincent.gastoni@parsons.com ♦ www.parsons.com

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Gary Yancer

From: Gary Yancer
Sent: Monday, October 28, 2019 1:39 PM
To: Banks, Emanuel
Cc: Geach, Tony
Subject: RE: White River Bridge Pier 1 Cap

Emanuel –

Following up on our conversation this AM, our engineers can be available as early as Wednesday or Thursday this week to meet, and we are prepared to adjust our schedules as necessary to fit other dates your folks may have. We are standing by on travel arrangements until we hear something back from you on schedule. Please let me know something as soon as you can.

In our conversation, you mentioned certain engineering analyses have been prepared by Jacobs and/or ArDOT that indicate that the as-built cap does not provide the necessary structural capacity. I think it would make for a much more productive meeting if our engineers were provided with that information in advance of the meeting so they can come prepared to discuss why those results are apparently so much different from our submitted analysis, which shows that the as-built capacity far exceeds design demand. Can you please have someone forward this information to us as soon as possible?

Thanks – Gary

Parsons-Mahan Joint Venture Board

Gary D. Yancer, P.E. | Managing Partner



250 N. Hartford Ave,
Columbus, OH 43222
C 614.314.3626
www.cjmahan.com

From: Gary Yancer
Sent: Friday, October 4, 2019 11:18 AM
To: Banks, Emanuel <Emanuel.Banks@ardot.gov>
Cc: Geach, Tony <Tony.Geach@parsons.com>; Hernandez, Michael <Michael.Hernandez@parsons.com>
Subject: White River Bridge Pier 1 Cap Analysis

Emanuel –

Attached is the “refined” analysis of the Pier 1 Cap that expands upon and supersedes the September 27, 2019 submittal that was made last Friday, and which I emailed to you just yesterday. The conclusions reached are the same: If there is a cold joint existing throughout the cap, even under the most conservative parameters assigned to that joint the analysis shows the as-built cap meets the original design intent. The attached also includes an evaluation of durability, taking into account vibrations transmitted to the cap from truck traffic. The recommendations include leaving the cap in place, and applying a Class 3 Sealer to prevent chloride intrusion.

Our engineers have also offered to meet with the Bridge Division folks to walk through this analysis and address any lingering concerns.

Please call me if you have any questions. Both Tony and I will be in Little Rock next week on Wednesday, and available to meet with you if necessary.

Thanks – Gary

Gary D. Yancer, P.E. | Managing Partner



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1499 West 120th Avenue, Suite 200, Westminster, CO 80234

November 21, 2019

Mr. Emanuel Banks, P.E.
Deputy Director and Chief Engineer
Arkansas Department of Transportation
10324 Interstate 30 / P.O. Box 2261
Little Rock, AR 72203-2261

Re: Job No. BB0610 FAP NHPP-40-4(81)200 White River Structure and Approaches
Pier 1 Pier Cap Potential Cold Joint
Appeal of Set Structural Steel

Dear Mr. Banks:

Over the course of the last 13 weeks there has been numerous submissions of analysis by PMJV and meetings to discuss the alleged cold joint in the White River Bridge Pier 1 Pier Cap. The most recent exercise was a refined analysis of the Jacobs, Design Engineer of Record, structural model by both Jacobs and PMJV engineers, using the most conservative assumptions in the AASHTO code. Based on the attached memorandum from Jacobs dated 11-08-2019, coupled with attached Parsons commentary, at this point all parties agree that the pier cap meets AASHTO Strength requirements and does not need to be removed based on a strength concern. There is still an unresolved issue about 100-year durability. It is in this context that PMJV respectfully requests that we be allowed to continue to set structural steel on the pier 1 pier cap while we work towards mutual agreement on how to address the durability concern. All of alternatives to address durability are still available to us in the coming months as we work to complete the critical path river crossing ahead of another flood season. At this point, the river is still flowing at elevations that allow steel erection activities to progress, but as we all know, this is subject to change on short notice.

Please confirm we may immediately begin setting of structural steel over pier 1 while the long term durability of the pier cap is being resolved.

If you would like to further discuss this issue, please contact me at (720) 576-6802

Sincerely,

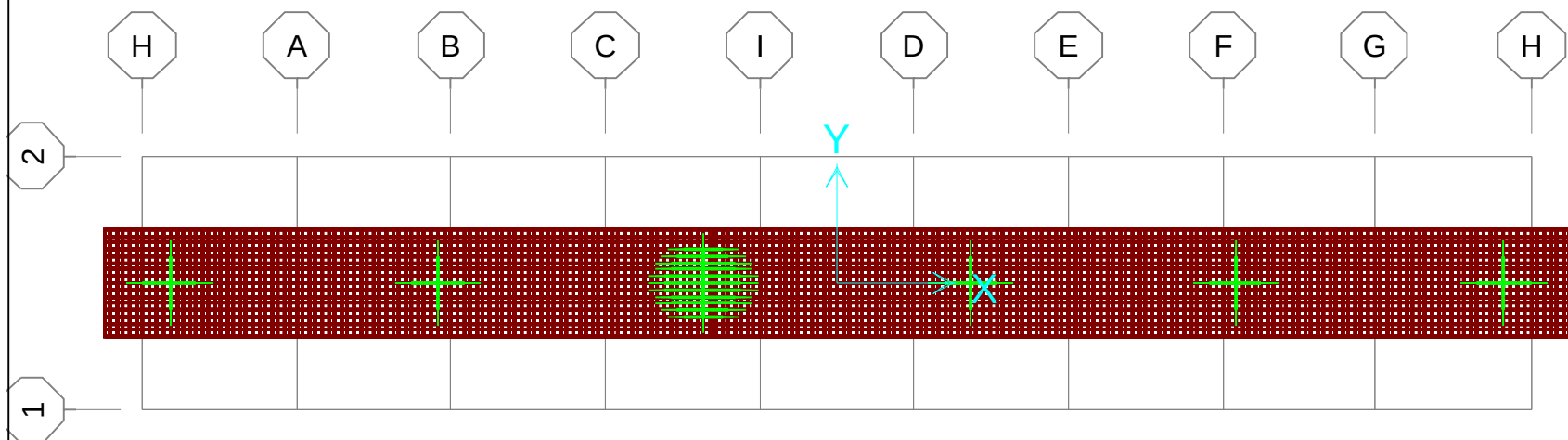


Michael Hernandez, P.E.
PMJV Project Manager

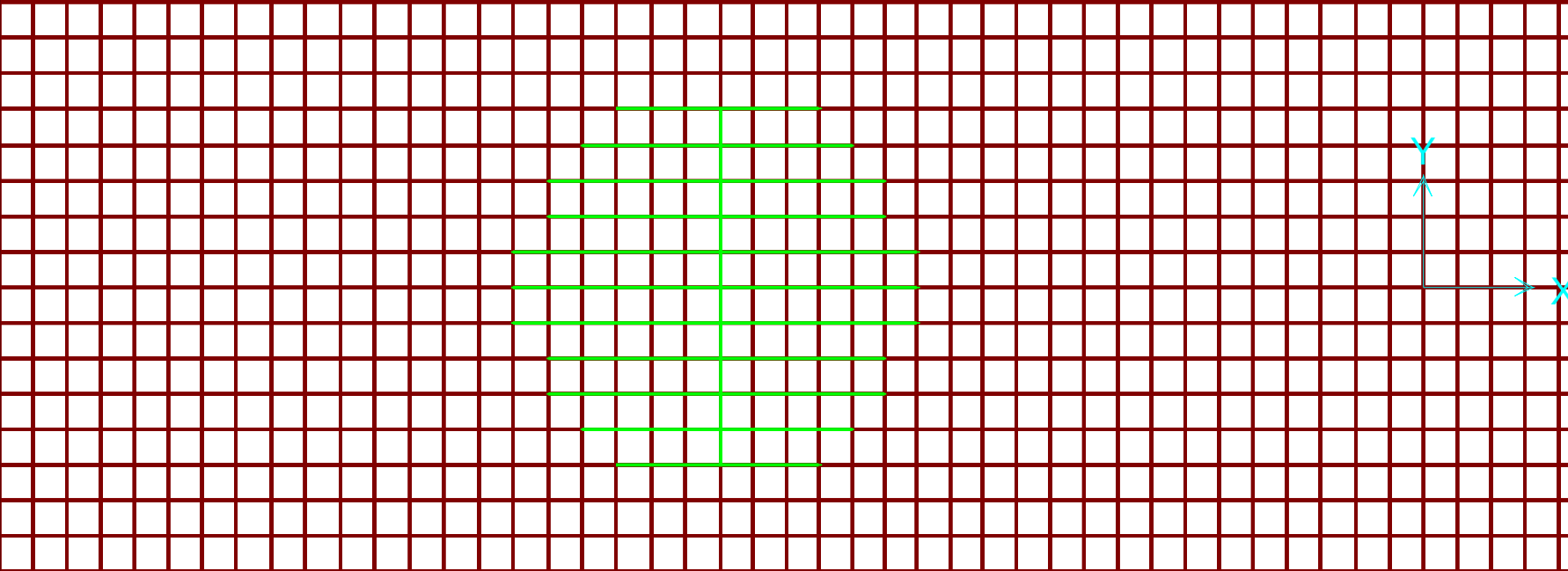
cc: Jerry Trotter, Colton Cowles, Mark Trickey, ArDOT Constuction
cc: Rick Ellis, Kyle Yeary, ArDOT Bridge Department
cc: Gary Yancer, Randy Schultz, Tony Geach, Doug McCrae, Vince Gastoni, Megan Forthman of PMJV

Model Layout at the Cap Soffit (X-Y Plane @ Z=0), Overall with Additional Links at Column 3

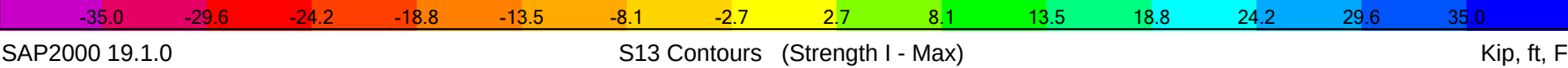
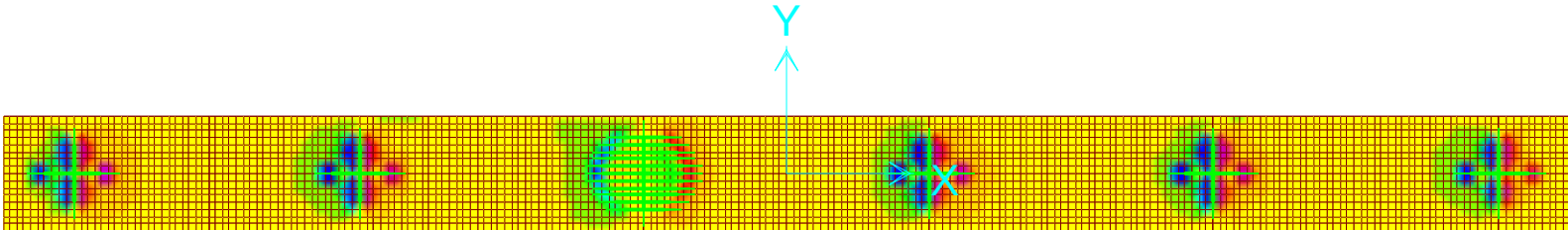
Analysis by Parsons engineers for PMJV dated 11/15/19
Pages 6 to 13 of 13 are all part of same SAP analysis



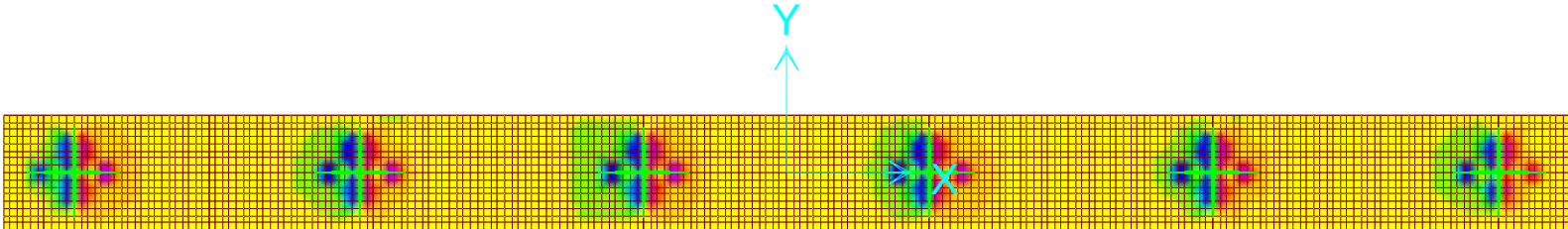
Model Layout at the Cap Soffit (X-Y Plane @ Z=0), with Additional Links at Column 3



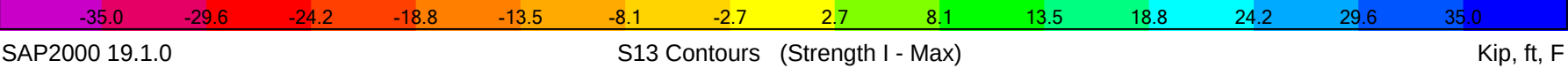
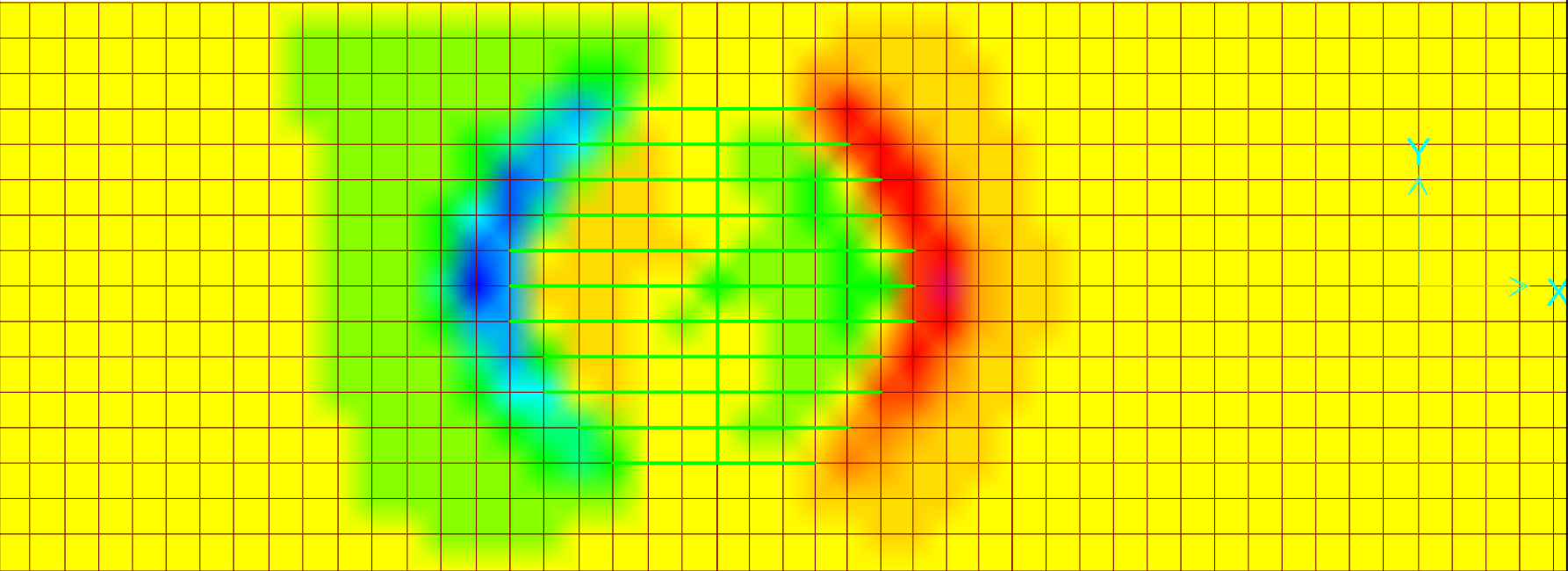
S13 Stress Plots (X-Y Plane @ Z=3.5), Overall (With modifications)



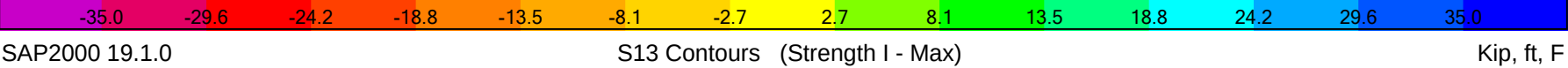
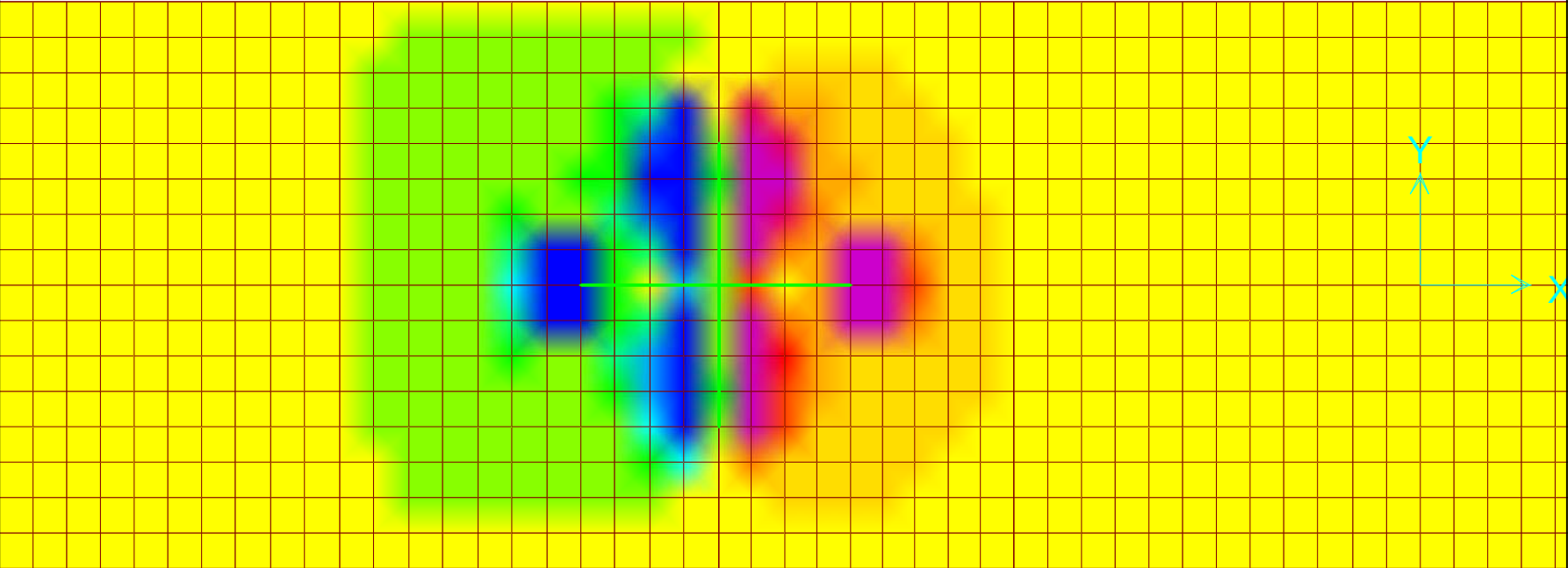
S13 Stress Plots (X-Y Plane @ Z=3.5), Overall (Without modifications)



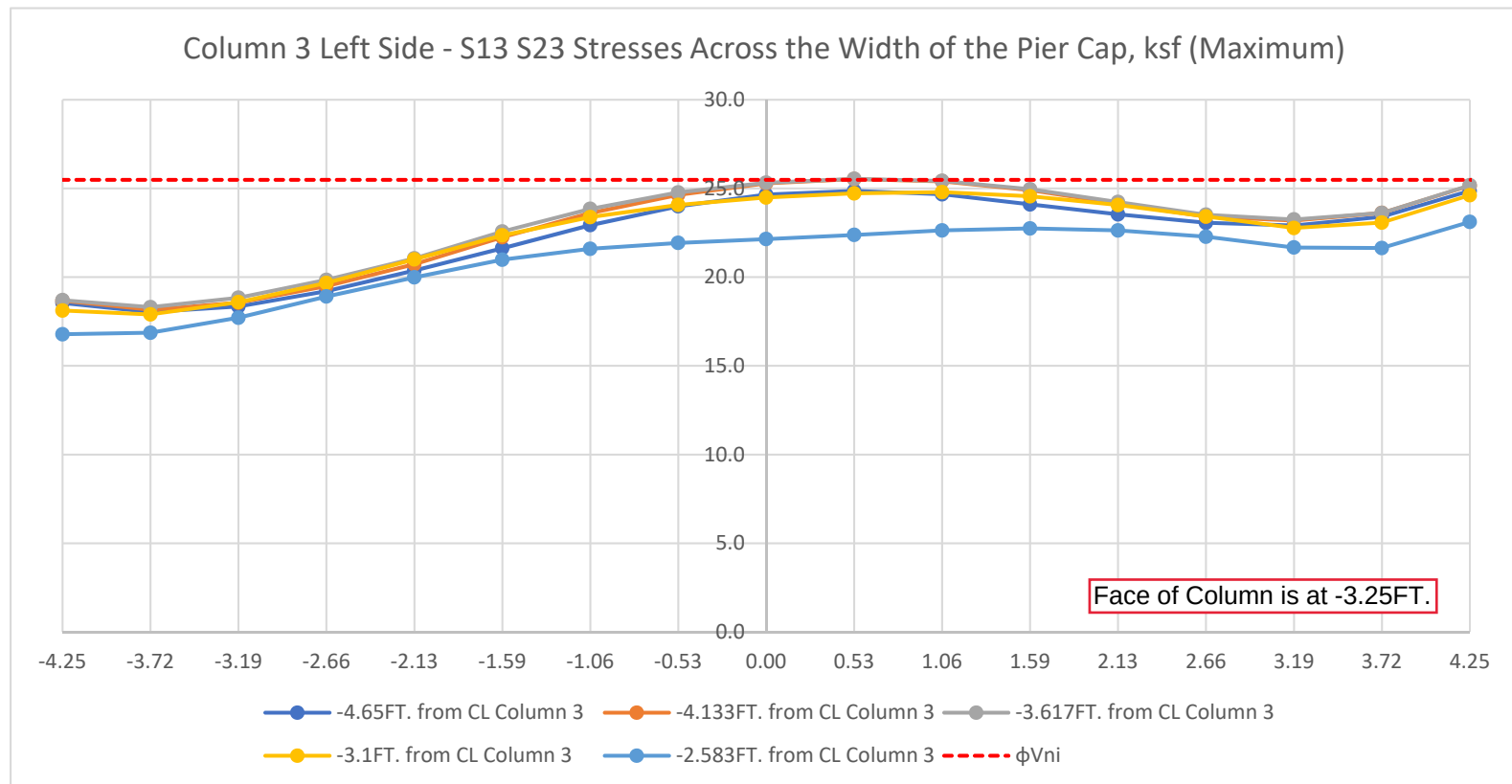
S13 Stress Plots (X-Y Plane @ Z=3.5), Column 3 (With modifications)



S13 Stress Plots (X-Y Plane @ Z=3.5), Column 3 (Without modifications)



Column 3 Left Side - S13 S23 Stresses Across the Width of the Pier Cap, ksf (Maximum)



Max. D/C = 1.00

Maximum Nodal Stress at Reported Nodes

X	Element	Joint	S13	S23	$\sqrt{(S13^2 + S23^2)}$ Stress		
					Average	Max.	Max. D/C
-15.15	35609	39207	24.86	0.48	22.30	24.86	0.98
-14.6333	35625	39221	25.52	0.51	22.75	25.53	1.00
-14.1167	35641	39235	25.53	0.62	22.88	25.54	1.00
-13.6	35658	39250	24.78	-0.76	22.45	24.79	0.97
-13.0833	35680	8363	23.07	-1.50	20.94	23.12	0.91

$\phi V_{ni} = 0.177 \text{ ksi}$
 $= 25.488 \text{ ksf}$

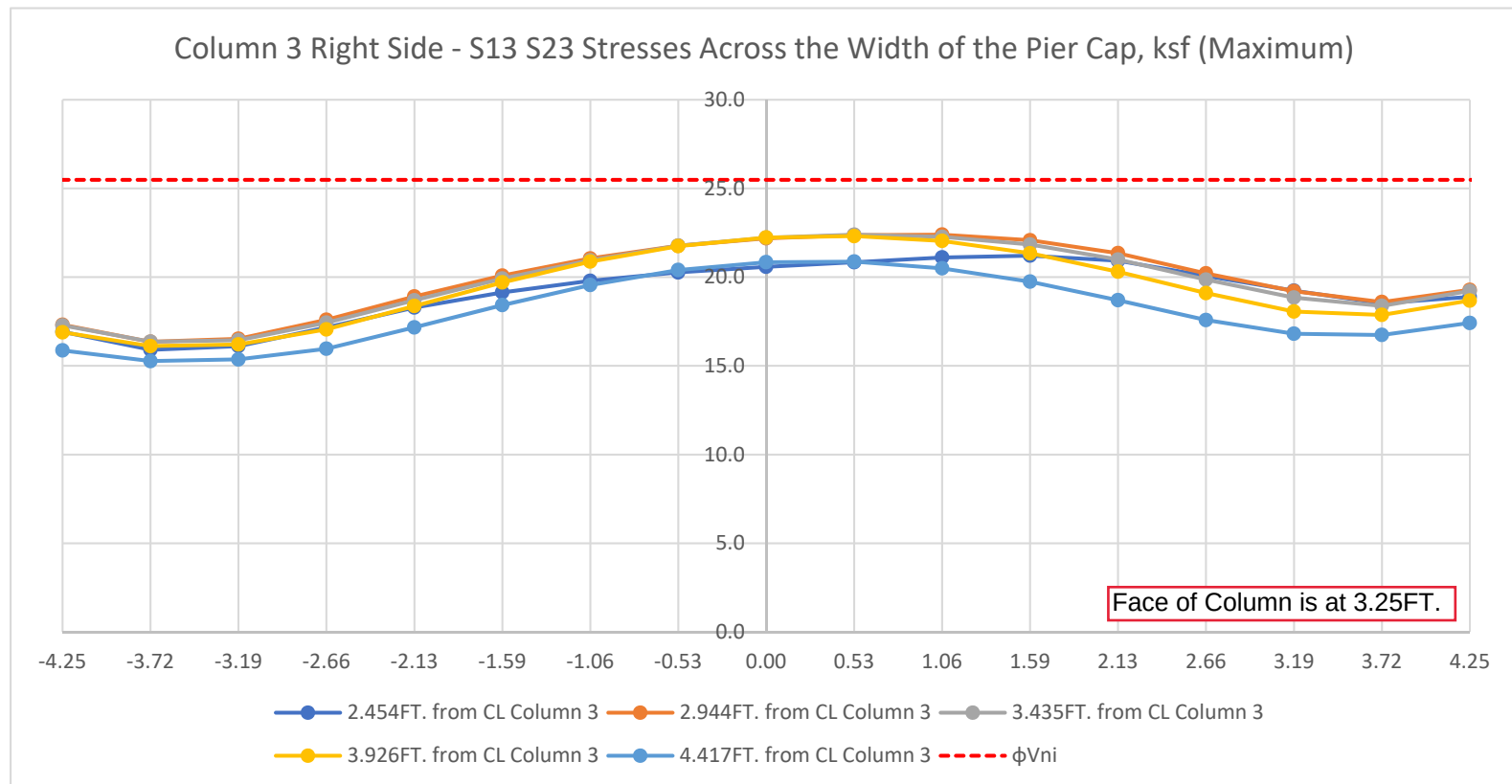
Avg. of the Maximum Nodal Stresses Across the Width of the Pier Cap

Maximum Stress at a Single Node

PMJV Ltr 11-21-19 Page 12 of 13

Cap Model - design loads_PJT_Results_3.xlsx

Column 3 Right Side - S13 S23 Stresses Across the Width of the Pier Cap, ksf (Maximum)



Max. D/C = 0.88

Maximum Nodal Stress at Reported Nodes

X	Element	Joint	S13	S23	$\sqrt{S13^2 + S23^2}$ Stress		
					Average	Max.	Max. D/C
-8.0463	39819	43017	-20.46	-5.60	19.12	21.21	0.83
-7.55556	39834	43030	-22.15	-3.31	19.84	22.40	0.88
-7.06481	39849	43043	-22.36	-1.20	19.70	22.39	0.88
-6.57407	39865	43057	-22.30	-0.86	19.35	22.32	0.88
-6.08333	39881	43071	-20.87	-0.46	18.07	20.88	0.82

$\phi V_{ni} = 0.177$ ksi
 $= 25.488$ ksf

Avg. of the Maximum Nodal Stresses Across the Width of the Pier Cap

Maximum Stress at a Single Node

[PMJV Ltr 11-21-19 Page 13 of 13](#)
 Cap Model - design loads_PJT_Results_3.xlsx

1499 West 120th Avenue, Suite 200, Westminster, CO 80234

November 27, 2019

Mr. Emanuel Banks, P.E.
Deputy Director and Chief Engineer
Arkansas Department of Transportation
10324 Interstate 30 / P.O. Box 2261
Little Rock, AR 72203-2261

Re: Job No. BB0610 FAP NHPP-40-4(81)200 White River Structure and Approaches
Pier 1 Pier Cap Potential Cold Joint
Appeal of Resident Engineer's Decision

Dear Mr. Banks:

We are in receipt of your letter dated November 25, 2019, in which you have denied our appeal regarding the directed removal and replacement of the Pier 1 cap. The stated basis¹ for your denial fails, as it ignores the conclusions reached in the structural analyses of the cap performed both by PMJV's consultants and by the Engineer of Record for the Project over the past three months.

As you are aware, a meeting was held in your offices in Little Rock on November 6, 2019, which included structural engineers for the Department, Jacobs (the Engineer of Record) and Parsons Group. The purpose of that meeting was to discuss the parameters used in the structural models prepared independently by both Parsons and Jacobs, and to identify the source of any differences in the results of those analyses. At the outset of the meeting, Jacobs' representatives stated on the record that they agreed there was no concern of a failure "on opening day," at which point the discussion shifted to potential means to address durability concerns associated with isolated "hot-spots" identified in Jacobs' model. Subsequent to the meeting, the Department, Parsons and Jacobs collaboratively refined the modelling of the Pier 1 Cap in order to evaluate long-term implications of an unplanned construction joint. Based on the memorandum from Jacobs dated November 8, 2019 (see Attachment A), coupled with the Parsons commentary dated November 15, 2019 (see Attachment B), it was again confirmed that even under the most conservative assumptions regarding the presence and physical parameters of this presumed construction joint, there are no concerns related to the capacity of the as-built cap to support the design loads.

¹ That is, that the multiple structural evaluations and discussions regarding the capacity of the as-built Pier 1 Cap "have failed to assure the Department that the as-built cap will provided the required strength without uncertainty and long term durability issues."

Conversely, the Department has failed to provide any empirical analysis to support its position that the cap should be removed.

PMJV further advises the Department that **there is new information available** in the form of a report received today, November 27, 2019 that describes the results of non-destructive Spectral Analyses of Surface Waves (“SASW”) testing that was performed on the cap earlier this month (see Attachment C). This report was in process and not available for distribution until just this morning. This report buttresses the results of the joint Parson/Jacobs structural modelling and the conclusions that the condition of the cap presents no issue. In considering this new SASW analysis, note that the modelling performed by both Parsons and Jacobs assumed a worst-case scenario in which a continuous, unroughened horizontal joint existed across the entire section of the cap. This new SASW analysis confirms that those assumptions are far too conservative as there is no indication of a construction joint over the entirety of the cap. Any potential anomalies are confined to the areas immediately adjacent to the vertical faces of the cap. This information not only eliminates any lingering concern regarding structural capacity, but also alleviates any valid concerns over long-term durability.

Based on these test results, and on the structural analyses performed to date, PMJV’s position remains as stated in our September 6, 2019 and September 24, 2019 letters (see Attachments D and E). As outlined in that prior correspondence, the physical investigation performed on the cap since placement provides no evidence that a continuous horizontal “cold joint” exists throughout the pier cap, and in fact indicates there is no such joint. Further, even if one assumes that an unplanned, unprepared horizontal construction joint did exist within and throughout the pier cap, the parallel engineering analyses performed by Jacobs and Parsons demonstrate that the as-built capacity meets the original design requirements. Both have concluded there is no further question regarding the strength of the as-built cap.

In addition to these findings by Parsons and Jacobs, PMJV also retained the services of McNary Bergeron to perform a peer review of Parsons’ analysis and to provide a third-party opinion on the structural implications of an assumed construction joint within the cap. Scott McNary, who is generally recognized as one of the foremost experts on concrete design and construction in North America, attended the appeal meeting held at your office on September 25, 2019, and in his remarks even went so far as to stake his professional reputation on his conclusion that there is no structural concern even if an unroughened construction joint were to exist in the cap.

Yet, despite this overwhelming body of engineering analysis and scientific conclusions presented, the Department continues to disregard those results and direct that the cap should be removed and replaced at PMJV’s expense. **Simply put, there is no contractual or engineering basis for this directive.**

If the Department requires replacement, the result is a clear case of economic waste in violation of Arkansas law. In Arkansas, the standard measure of damages in construction-contract cases involving new structures is the cost-of-repairs, unless the cost to tear down and re-construct is unreasonable economic waste, then the court will award the difference in market value as a

measure of damages.² Here, the removal and replacement of the Pier 1 Cap would constitute economic waste as the analyses and empirical evidence noted above demonstrate that removal and replacement will result in zero difference in the ability of the Cap to withstand design loads. Therefore, regardless of whether removal and replacement occurs, the value of the bridge will be exactly the same to the Department, the people of Arkansas, and the traveling public.

Additionally, if the Department requires replacement, the Department should advise HDR and its insurance carrier of a claim associated with the cost of this work, as HDR was the Department's third-party inspector during the event in question and HDR approved PMJV's proceeding with the pour. PMJV currently estimates the direct cost of removal and replacement to be in excess of \$1.5 million, plus another \$2 million in extended duration costs associated with the resultant critical-path delay. Assuming no intervening high-water event, this impact is expected to extend the job by at least another 70 days, indicating a cost to the travelling public of a further \$2.1 million based on the Daily Road User Cost identified in the Contract.

Based on the foregoing, PMJV respectfully requests that the Department reconsider its decision. Given the analyses establishing the cap is structurally acceptable, and in light of the new information provided in Attachment C indicating there is, in fact, no "cold joint," the directive to remove and replace the cap is arbitrary and capricious.³

As always, we are prepared to meet with you and your staff at your earliest opportunity to discuss the path forward to complete the Project as expeditiously as possible and to work towards resolution of the cost and schedule impacts of this issue. In the meantime, we again request your immediate release to begin erection of the remaining structural steel over Pier 1. Past experience at this site indicates that it is critical that we complete steel erection before expected seasonal releases of the upstream flood-control facilities take place and render the site inaccessible. Please contact me on my cell at 614-314-3626 as soon as possible to schedule a meeting or discuss this matter further.

Sincerely,

PARSONS MAHAN JOINT VENTURE



Gary D. Yancer, P.E.
PMJV Board Member

² See *Page v. Ballard*, 2011 Ark. App. 357, 2 (Ark. Ct. App. 2011); *Williams v. Charles Sloan, Inc.*, 706 S.W.2d 405, 406-407 (Ark. Ct. App. 1986) ("[W]e find that the courts' preference for the cost of repairs measure and the economic waste exception are devices to avoid the situation where the contractor is required to tear down a structure, or otherwise commit economic waste, to correct a defect that does not detract from the market value as much as it would cost to repair it.").

³ If replacement is required on the basis that the cap is damaged, the record is clear that any damage in the form of a "cold joint" was incurred as the direct result of an interruption in concrete placement due to an unanticipated lightning storm. An unanticipated lightning storm is unquestionably an Act of God. As such, all costs and schedule impacts associated with your continued direction to remove and replace the cap are compensable under 106.17.

Attachments: A – Jacobs’ Memorandum dated November 8, 2019
B – Parsons’ Memorandum dated November 15, 2019
C – Olson Engineering SASW Testing Report dated November 26, 2019
D – PMJV Letter dated September 6, 2019 (w/Exhibits)
E – PMJV Letter dated September 24, 2019 (w/o Exhibits)

cc: Mr. Michael Hernandez, PMJV Project Manager
PMJV Board of Managers

PMJV 11-27-19 Attachment A Jacobs Memo dated 11-8-19, 4 pages
also in 11-21-19 letter removed

PMJV 11-27-19 Attachment B Parsons Cals dated 11-15-19, 8 pages
also in 11-21-19 letter removed

PMJV 11-27-19 Attachment D PMJV Letter dated 09-06-19 11 pages
removed

PMJV 11-27-19 Attachment E PMJV Letter dated 09-24-19 4 pages
removed

Attachment B –
Parsons email dated November 15, 2019

Subject: FW: White River - memo from Vince Gastoni to ArDOT
Attachments: Cap Model_PTG_Results.pdf; Column-Cap Add'l Interface.pdf

From: Gastoni, Vincent <Vincent.Gastoni@parsons.com>
Sent: Friday, November 15, 2019 4:32 PM
To: Hernandez, Michael <Michael.Hernandez@parsons.com>
Subject: FW: BB0610 White River - RFI-075 Cold Joint at Pier 1

FYI-I spoke to Kyle before sending, I think he is done with the "strength" evaluation and we are good there. He will leave the subjective durability decision to others and without any additional information (his words) that decision remains uncertain and above his pay grade.

Vince Gastoni
PARSONS
DIR (612) 656-7070 CELL (612) 309-3707
vincent.gastoni@parsons.com ♦ www.parsons.com

From: Gastoni, Vincent
Sent: Friday, November 15, 2019 4:01 PM
To: Yeary, Kyle W. <Kyle.Yeary@ardot.gov>
Cc: Ellis, Rick <Charles.Ellis@ardot.gov>; Trotter, Jerry W. - Construction <Jerry.Trotter@ardot.gov>
Subject: RE: BB0610 White River - RFI-075 Cold Joint at Pier 1

Thanks Kyle. We also update the SAP model boundary conditions for one column (column 3) per our ideal column/cap interface support. We are seeing similar results (D/C of 1.0 for peak stress point and D/C of 0.90 for integrated force over cap width which) of about a 20% reduction in peak stress due to boundary condition adjustment similar to Jacobs findings.

Parsons SAP Model Updates (See attached):

- Add 98 links at Column 3 to provide a connection of all nodes within the perimeter of the 6.5-ft diameter column to the beam element representing the column in the model.
- Adjust link properties at the load application points to resolve an instability reported a 1 node at each of the 10 load application points.

Included in the attached document are:

- Model Layouts at the Cap Soffit (X-Y Plane @ Z=0'), Overall and Column 3
- S13 Stress Plots (X-Y Plane @ Z=3.5'), Overall and Column 3 (with and without modifications described above)
- Combined S13_S23 Stress Graphs at the Left Side and Right Side of Column 3

As for the PT bar discussion our summary is as follows:

Per Jacobs Oct 23 Results:

- Max. Jacob's stress: 32.07 ksf
- Factored Resistance, ϕV_{ni} : 25.5 ksf ($c = 0.075$ ksi, $\mu = 0.6$, $P_c = 99.9$ k per 12' section per Jacobs calc.)
- Req'd PT Bar Stress = $(32.07 - 25.5 \text{ ksf}) / (0.9 \times 0.6) = 6.57 \text{ ksf} / (0.9 \times 0.6) = 11.48 \text{ ksf}$
- 1-3/8" PT Bar Force = $1.58 \text{ in}^2 \times 150 \text{ ksi} = 237 \text{ k} \times 0.9 = 213.3 \text{ k}$ (yield force)
- Area stressed by PT Bar = $213.3 \text{ k} / 11.48 \text{ ksf} = 18.6 \text{ ft}^2$
- Using 2 PT Bars per spacing, spacing of PT Bars parallel to Pier Cap = $18.6 \text{ ft}^2 / 4.25 \text{ ft width} = 4.4 \text{ ft}$

- Place 4 bars total, place 1st pair of bars 2.2 ft from the column face.

We applied the external PT bar force in the Parsons LARSA model to evaluate impacts to the reported stresses. In summary, there was little change to the demand stress/stress “flow” and the principle contribution of the PT bars is to the capacity side of the equation through additional clamping force.

Per Jacobs Nov. 8, 2019 Results:

- Max. Jacob’s stress: 25.56 ksf
- Factored Resistance, ϕV_{ni} : 25.5 ksf ($c = 0.075$ ksi, $\mu = 0.6$, $P_c = 99.9$ k per 12’ section per Jacobs calc.)
- Req’d PT Bar Stress = $(25.56 - 25.5 \text{ ksf}) / (0.9 \times 0.6) = 0.06 \text{ ksf} / (0.9 \times 0.6) = 0.11 \text{ ksf}$
- 0.11 ksf is effectively zero, no additional PT required for this case.

Discussion: Based on a Jacobs model peak stress evaluation, the element is near capacity per the conservative interface parameters assumed for evaluation. As such, the addition of PT bars does not provide the same value as was discussed previously for the higher reported stresses. Further, the invasive nature of installing the PT bars may present more detrimental impacts to the cap as well as additional long term maintenance elements. Based on Jacobs results and Parsons previous analysis, we do not recommend the installation of PT bar and feel there are other methods to add durability to the cap such as sealants or coatings. Fiber wrap in critical areas of concern is also a consideration for environmental protection as well as increasing inherent strength but consideration for future inspection needs to be considered since the wrap precludes inspection of the concrete cap itself.

I do note that the analysis by both Jacobs and Parsons demonstrates that the cap meets the original design strength parameters and the erection of the steel does not preclude the installation of the durability approaches discussed to date. Given this detailed analysis, I recommend the cap be allowed to remain in place and erection of steel be allowed to continue while the final solution to durability is determined and installed at a later date. Please call to discuss further or I can join in on a conference call or meet in person as necessary.

Regards,

Vincent T. Gastoni, PE

Principal Bridge Engineer,
Principal Project Manager

PARSONS

DIR (612) 656-7070 CELL (612) 309-3707

vincent.gastoni@parsons.com ♦ www.parsons.com

From: Yeary, Kyle W. <Kyle.Yeary@ardot.gov>

Sent: Friday, November 15, 2019 12:03 PM

To: Gastoni, Vincent <Vincent.Gastoni@parsons.com>

Cc: Ellis, Rick <Charles.Ellis@ardot.gov>; Trotter, Jerry W. - Construction <Jerry.Trotter@ardot.gov>

Subject: [EXTERNAL] FW: BB0610 White River - RFI-075 Cold Joint at Pier 1

Vince,

As we discussed, here are the results from Jacobs on their reassessment of the support nodes.

Thanks,

Kyle

From: Asher, Mark A. [<mailto:Mark.Asher@jacobs.com>]

Sent: Monday, November 11, 2019 3:21 PM

To: Ellis, Rick <Charles.Ellis@ardot.gov>; Yeary, Kyle W. <Kyle.Yeary@ardot.gov>

Cc: Finke, John <John.Finke@jacobs.com>; Kimmle, Andrew <Andrew.Kimmle@jacobs.com>; Schurk, Mark <Mark.Schurk@jacobs.com>; Peyvandi, Amirpasha/DEN <Amirpasha.Peyvandi@jacobs.com>

Subject: BB0610 White River - RFI-075 Cold Joint at Pier 1

Rick and Kyle,

Per the discussion during last week's meeting on Wednesday, November 6, 2019, Jacobs has modified the connection between the column and the cap in our model. Attached are the results. The peak demand was reduced but remains slightly above the factored capacity.

As discussed in the meeting we are starting with assumptions that are in question and cannot easily be verified nor adjusted, assuming conditions are as modeled and will not worsen over time, are systematically removing any conservatism in the analysis through the use of refined analysis, and assuming redistribution of stress will address the peak stress without a model validating that.

As discussed in the *Discussion of Results* at the end of the attached PDF. We are concerned with the serviceability and durability of the cap over time if it is accepted as constructed. Continued refinement of the FEM's does not seem a worthwhile use of time or resources at this point. We recommend the attention of the contractor be placed on immobilizing the as constructed joint and addressing infiltration via the joint. Which is where I believe the conversation ended in last week's meeting.

If there is anything else we can do to assist the Department in review or analysis related to this RFI please let me know. As always, if there are any questions or concerns please do not hesitate to ask.

Thank you,
Mark Asher, P.E.
Manager of Projects

JACOBS
Southern Region
(501) 837-5639

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Attachment C –
Olson SASW Report dated November 27, 2019



November 27, 2019

PMJV 11-27-19 Attachment C

Vezina, Lawrence & Piscitelli
413 East Park Avenue
Tallahassee, Florida 32301

Attn: Bradley S. Copenhaver
(850) 224-6205 (office)
(850) 321-3327 (cell)
Email: BCopenhaver@vlplaw.com

Re: Nondestructive Evaluation (NDE) Investigation Report
Spectral Analyses of Surface Wave Results
Evaluation of Lift Line/Potential Cold-joint Concrete Conditions
Pier 1 Pier Cap East and West Sides
Interstate 40 (I-40) Bridge over the White River
Prairie County, Near Hazen, Arkansas
Olson Job No. 6701A

Dear Sirs:

This report presents the findings of a nondestructive evaluation (NDE) investigation into a visible concrete lift line/potential cold-joint in the Pier 1 Pier Cap of the White River Bridge project on I-40 near Hazen, Arkansas. This investigation was conducted for Vezina Lawrence & Piscitelli (VLP). The White River Bridge is currently under construction by the Parsons Mahan Joint Venture (PMJV). The focus of the investigation was to determine the presence and extent of a potential cold-joint in the pier cap that was of concern due to a concrete placement delay caused by a severe thunderstorm about 2 months ago. Nondestructive testing was performed to evaluate the concrete conditions of the lift line/potential cold-joint using the Spectral Analysis of Surface Waves (SASW) test method on the East and West faces with the visible lift line/potential cold joint. The report presents the Executive Summary, Project Background and Investigation Overview, SASW Test Results, and descriptions of the SASW method used on the Pier 1 Pier Cap East and West Sides.

EXECUTIVE SUMMARY

Olson Engineering was contracted by VLP to provide a Nondestructive Evaluation (NDE) investigation of a visible lift line in the concrete of the Pier 1 Pier Cap of the White River Bridge. The primary focus of the investigation was to determine the presence and extent of a potential horizontal cold-joint at the visible lift line that may have been caused by a weather delay due to a severe thunderstorm which occurred during concrete placement in Pier Cap 1.

NDE Investigation Overview and Results. The NDE investigation utilized the Spectral Analyses of Surface Waves (SASW) test method to evaluate the concrete conditions. The lift line of concern is visible on both sides of Pier Cap 1 at about 2 to 4.5 ft above the bottom of the pier cap and has been mapped out by PMJV. The SASW testing was performed at 5 ft intervals from the sides of the pier cap on the East and West faces at locations above, below and across the visible lift line to evaluate the concrete bonding and quality of the lift line/possible cold-joint.

East Face SASW Results: The SASW results indicate that all 22 tests of the East Face across the visible lift line are indicative of Good Concrete conditions with no slower surface wave velocities measured in tests across the visible lift line (Table 1). The SASW tests indicate one Fair result, with a slightly slower surface wave velocity near the vertical test surface. The single Fair test was not done across the visible lift line. This result is likely due to minor inconsistencies at or near the test surface.

West Face SASW Results: The SASW results indicate that 21 of 22 tests of the West Face across the visible lift line are of Good condition (see Table 2). Three areas of Fair results were found, with one Fair, slightly slower velocity result across the lift line where Horizontal Core 1 showed a shallow, near-surface discontinuity that appears to be a cold-joint in the photographs supplied to us. This one Fair location SASW test done vertically across the lift line, indicated Fair conditions near the test surface (<12 inches deep) with faster velocity Good concrete conditions measured at greater depths into the concrete. The two Fair locations not across the lift line are both due to slightly slower velocities near the test surface, which again, are likely due to minor inconsistencies at or near the test surface.

Conclusions. The SASW results found generally Good concrete locations with good surface wave velocity/concrete contact conditions in 43 of 44 tests conducted vertically across the visible lift line. A single SASW test across the lift line found Fair concrete conditions at the same location that Horizontal Core 1 of the West Face also found a shallow, apparent cold-joint discontinuity based on our review of provided core photographs. Given that the reinforced concrete is of Good quality above and below the visible lift line with one limited area of near-surface cold-joint conditions, we recommend that a structural evaluation be conducted to determine the impact of the limited cold joint area at Horizontal Core 1 on the structural capacity of the Pier 1 Pier Cap beam.

PROJECT BACKGROUND AND NDE INVESTIGATION OVERVIEW

This report presents the results of the NDE based concrete condition assessment of the lift line visible in the Pier 1 Pier Cap of the I-40 White River Bridge project near Hazen, Arkansas. We understand that the investigation was requested due to concerns of a possible horizontal cold-joint which may have occurred during an approximately 2.5 hour delay during the pier cap concrete placement which was caused by heavy rain and severe lightning about 2 months ago. The tested Pier 1 Pier Cap 1 is 115'-6" long, 8'-6" wide and 10' tall. The horizontal (X) zero reference is the south end of the pier cap structure. Figures 1 and 2 present photographs of Pier Cap 1 and the visible lift line. Figure 3 presents a drawing prepared by the PMJV which shows the approximate height of the lift line from the bottom of the pier cap. SASW test methods were used to evaluate the concrete condition. The field NDE testing was conducted by Mason Timm, Staff Engineer of Olson Engineering (OLSON) with assistance from on-site PMJV personnel on November 2nd and 3rd, 2019.

The SASW testing was performed using an Olson Instruments Freedom Data PC and SASW bar with 2 displacement transducers. The SASW testing was performed from the sides of the pier cap on the East and West faces, above, below and across the visible lift line to evaluate the concrete bonding through the area of the possible cold-joint. The SASW tests were performed at 5 ft intervals along the length of the structure. At each test location, five SASW tests were conducted around the visible lift line typically using the 2 oz. ballpeen hammer for impacts in-line with the SASW-S bar. Two tests were conducted horizontally a few inches above the lift line and vertically across the lift line with a 2.62 ft (80 cm) transducer spacing. Three tests were further conducted at each location along the pier cap horizontally a few inches above the lift line, horizontally a few inches below the lift line and vertically across the lift line with a 0.98 ft (30 cm) transducer spacing. The SASW measurement depth ranges approximately from ¼ to 2-3 times the transducer spacing (e.g. for a 1 ft transducer spacing, SASW data is acquired between the pair of transducers for a depth range of approximately 3 to 24-36 inches into the concrete).



Figure 1: Photo of the tested bridge Pier 1 Pier Cap looking at the west face and visible lift line.



Figure 2: Photo of visible lift line on the East face of Pier Cap 1 looking to south.

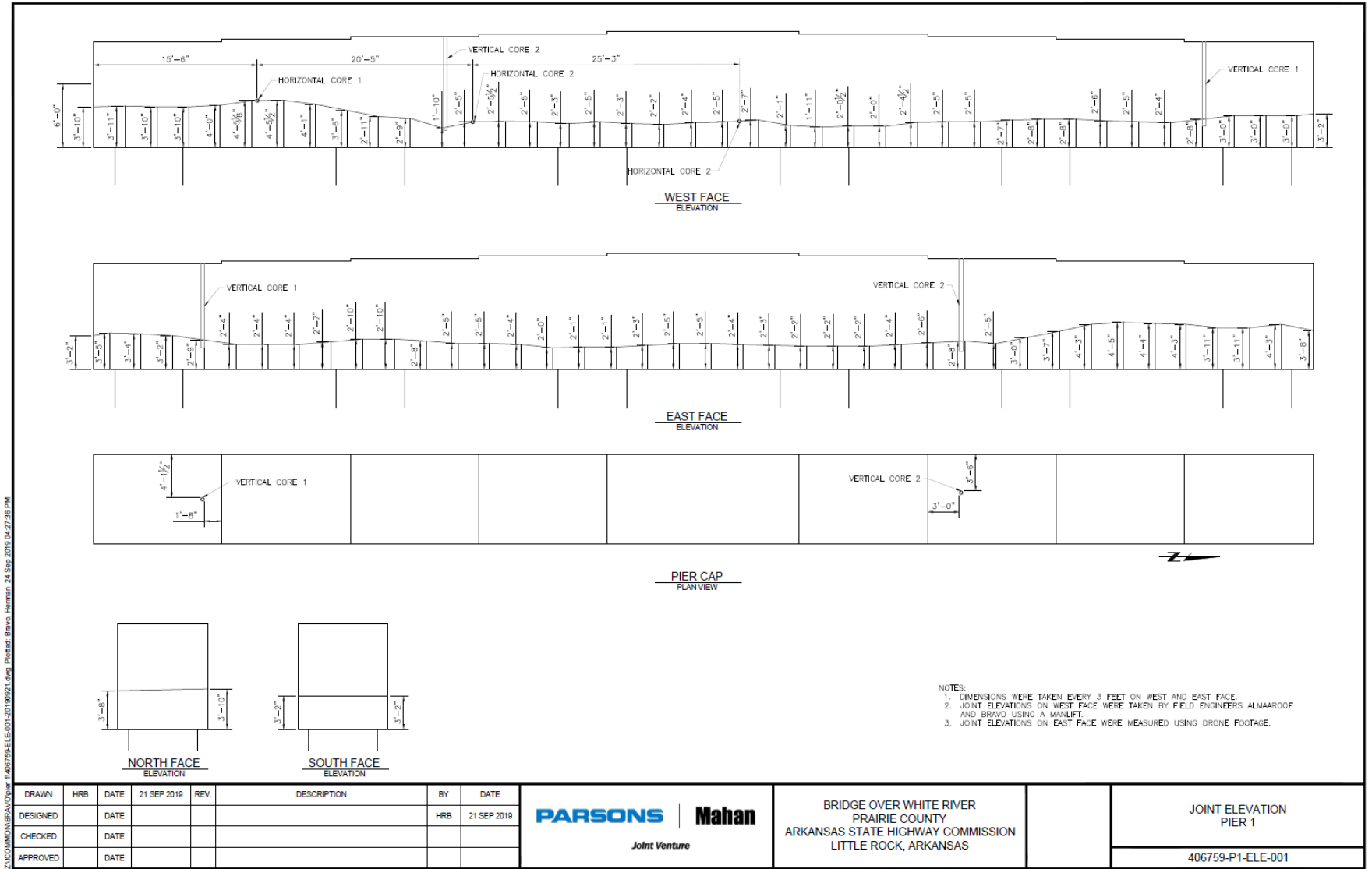


Figure 3: Drawing of Pier Cap 1 showing approximate height of the visible lift line on each face of the pier cap along with Horizontal and Vertical Core locations (by others)

SPECTRAL ANALYSIS OF SURFACE WAVES (SASW) TEST RESULTS

The SASW data was processed by evaluating the dispersion curve (velocity vs depth plot) for each test record and determining which records (if any) had a slower than expected surface wave velocity. The dispersion curve is developed from the phase data measured between the two transducers as described below in the SASW test method section. Each test locations was given a condition rating of “Good”, “Fair”, or “Questionable” depending upon the average surface wave velocity and the shape of the velocity vs depth plot. A “Good” rating indicates that the concrete velocity was in the range of typical structural concrete (6,500 – 8,000 ft/sec) and was consistent with no significant slow velocity zones or velocity drops. A “Fair” rating is assigned to records in which a portion of the velocity profile (with depth) dipped below 6,500 ft/sec or if there was a significant ($>1,000$ ft/sec) drop in velocity or was a combination of minor inconsistencies indicating potential cold-joint conditions. A “Questionable” rating is assigned to records in which a portion of the surface wave velocity profile (a dispersion curve plot of velocity vs. wavelength and wavelength is approximately depth) dipped below 5,000 ft/sec or if there was a significant ($>1,500$ ft/sec) drop in velocity or was a combination of significant inconsistencies.

Example SASW data with Good and Fair results are presented in Figures 4 and 5 below. Note that no SASW tests were categorized as “Questionable”. A total of 110 SASW tests were performed on each face (East and West) of the pier cap. Only three records from the West face of the pier cap were categorized as of Fair condition, and only one of these records was across the lift line and it is presented in Figure 5 below. Note that this test is near the location of Horizontal Core 1 on the West Face which revealed an apparent shallow discontinuity, cold-joint separation in core photographs provided to us as further discussed in the next section below. The two other tests noted as Fair were either above or below the lift line and had slower velocity near the surface, which is likely due to minor localized anomalies. Only one SASW record from the East face of the pier cap was categorized as of Fair condition and this single Fair results was not across the lift line. The SASW results are summarized in Tables 1 and 2 below and presented graphically in Appendix A with detailed tabular summaries of the SASW results presented in Appendix B.

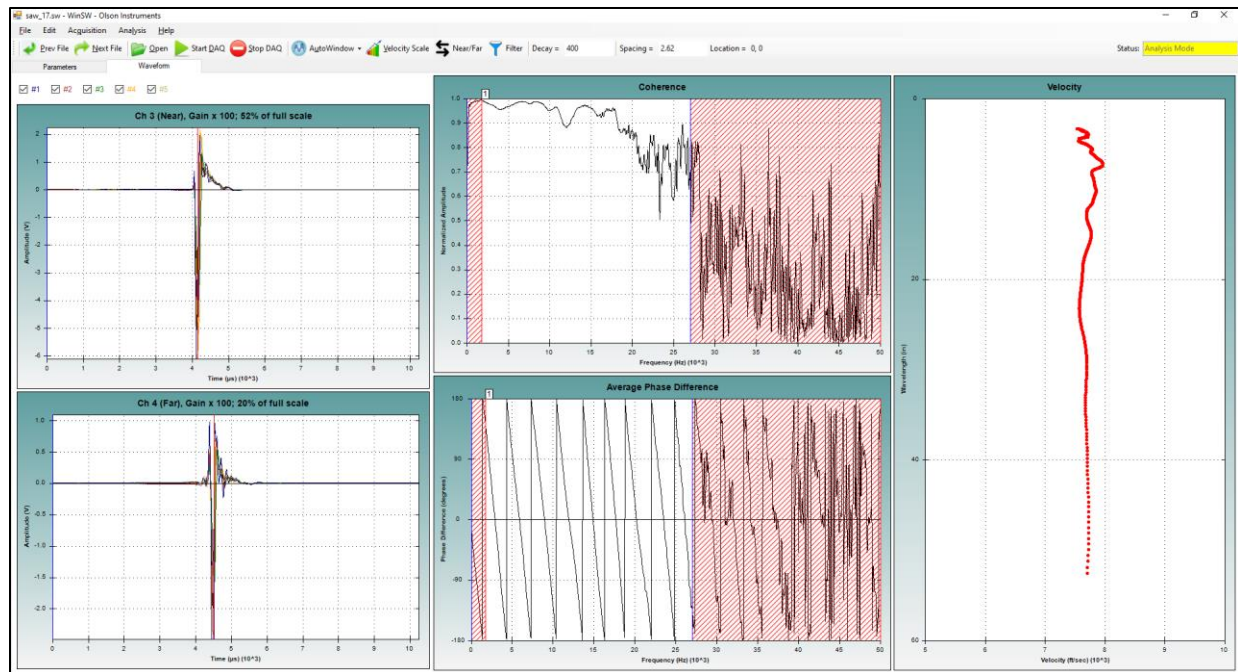


Figure 4: Example SASW data – Good Conditions test at 20’ from south end, testing on West face of pier cap across lift line. Dispersion Curve plot on right shows a surface wave velocity above 7,500 ft/sec from wavelengths/depths of approximately 3 – 53 inches (file saw_17.sw). The transducer responses (2.62 ft apart) are shown in the two plots on the left with the coherence (middle top plot) and phase plot (middle bottom plot with masked out data) to calculate the dispersion curve.

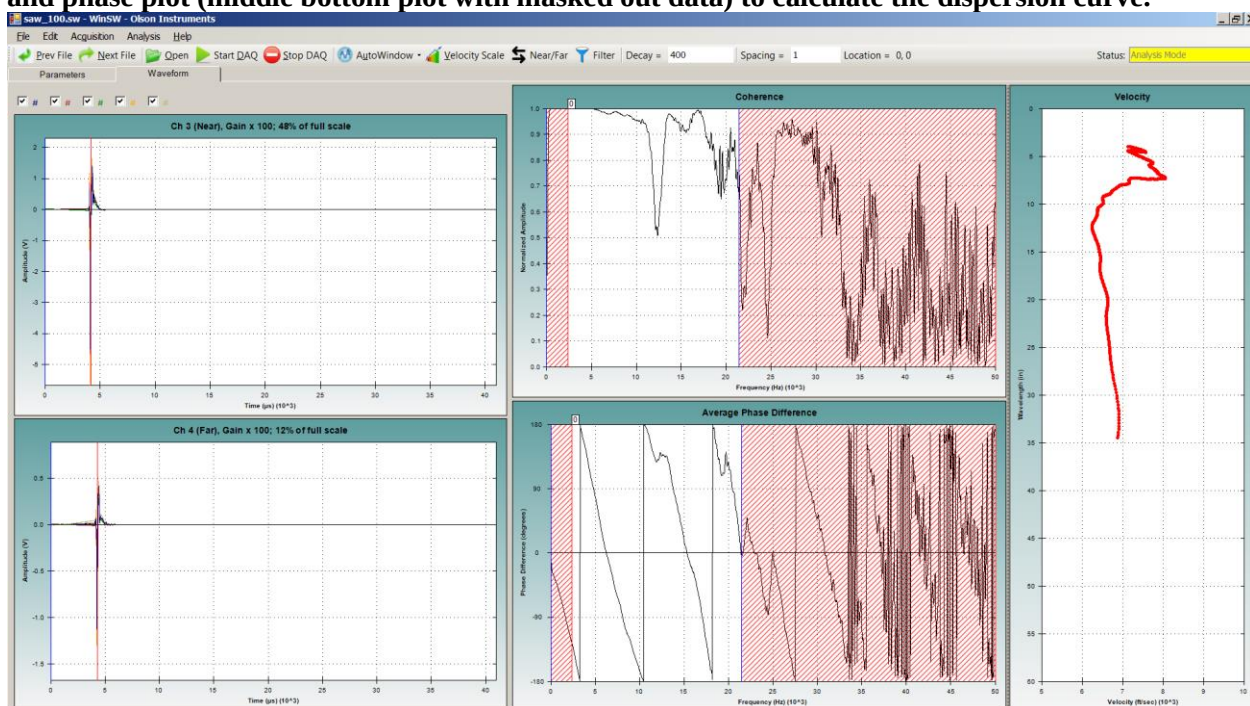


Figure 5: Example SASW data- Fair conditions test at 100’ from south edge, testing on West Face of pier cap across lift line. Surface wave velocity is slower at 4”, then decreases around 7” deep from 7,500 to ~6,100 ft/sec then begins increasing beyond 12” deep (file saw_100.sw). This test is at the location of Horizontal Core 1 which revealed a near-surface, shallow crack/discontinuity.

Table 1: Summary of SASW Test Results on East Face of Pier Cap 1

	ALL SASW Tests (0.98 and 2.62 ft receiver spacings)		ALL SASW Test Locations		SASW Tests Across Lift Line	
Concrete Condition	# of Tests	% of Tests	# of Locations	% of Locations	# of Locations	% of Locations
Good	109	99.1%	21	95.5%	22	100.0%
Fair	1	0.9%	1	4.5%	0	0.0%
Questionable	0	0.0%	0	0.0%	0	0.0%
Total	110		22		22	

Table 2: Summary of SASW Test Results on West Face of Pier Cap 1

	ALL SASW Tests (0.98 and 2.62 ft receiver spacings)		ALL SASW Test Locations		SASW Tests Across Lift Line	
Concrete Condition	# of Tests	% of Tests	# of Locations	% of Locations	# of Locations	% of Locations
Good	107	97.3%	20	90.9%	21	95.5%
Fair	3	2.7%	2	9.1%	1	4.5%
Questionable	0	0.0%	0	0.0%	0	0.0%
Total	110		22		22	

COMPARISON OF NDT RESULTS TO CONCRETE CORE RESULTS

OLSON was given information regarding the acquisition of 5 cores from the structure, 3 horizontal cores on the visible lift line on the West face of the pier cap and 2 vertical cores from the top of the pier cap. Photographs of 4 of the cores were provided except no photograph of the 2nd vertical core was able to be provided to us. Olson has reviewed the photographs and found that in three of the sets of core photographs, the lift line is not visually apparent. In the photographs of Horizontal Core 1 at the lift line there appears to be a crack that extends from the surface to a depth of approximately 4 inches deep, thereafter the lift line is apparent but appears to be tight/well bonded to a depth of approximately 10 inches. Beyond a depth of 10 inches, the lift line is not apparent in the supplied photographs.

Olson has reviewed the SASW results from tests closest to each of the 3 horizontal core locations as summarized in Table 3 below. At the location of Horizontal Core 1, the SASW testing across the lift line indicated Fair conditions near the surface (<12 inches) and Good conditions deeper into the concrete. At the location of Horizontal Core 2, the SASW tests above and below the lift line indicated Fair conditions near the surface (<14 inches) and Good conditions deeper into the concrete.

Table 3: Comparison of Supplied Core Conditions from Photographs to Nearest SASW Results

Horizontal Core No.	Face	Approximate Distance from South End (ft)	Approximate Height Above Pier Cap Bottom (ft)	Core Condition from Visual Inspection of Photographs	NDT Results SASW Across Lift Line	NDT Results SASW Above and Below Lift Line
1	West	100.00	4.417	Crack to a depth of ~4" Lift Line apparent to depth of ~10"	Fair Near Surface	Above - Good Below - Good
2	West	79.50	2.417	No Cold Joint Apparent in Photo	Good	Above - Fair Near Surface Below - Fair Near Surface
3	West	52.25	2.5	No Cold Joint Apparent in Photo	Good	Above - Good Below - Good

SPECTRAL ANALYSES OF SURFACE WAVES (SASW) TEST METHOD

The SASW method is based upon measuring surface waves propagating in layered elastic media and is illustrated in Figure 6 and demonstrated in the photograph of Figure 7. The ratio of surface wave velocity to shear wave velocity varies with Poisson's ratio. However, reasonable estimates of Poisson's ratio and mass density for concrete and other materials can be made. Therefore, knowledge of the surface wave velocity combined with reasonable estimates of mass density and Poisson's ratio allows calculation of elastic moduli for low-strain amplitudes.

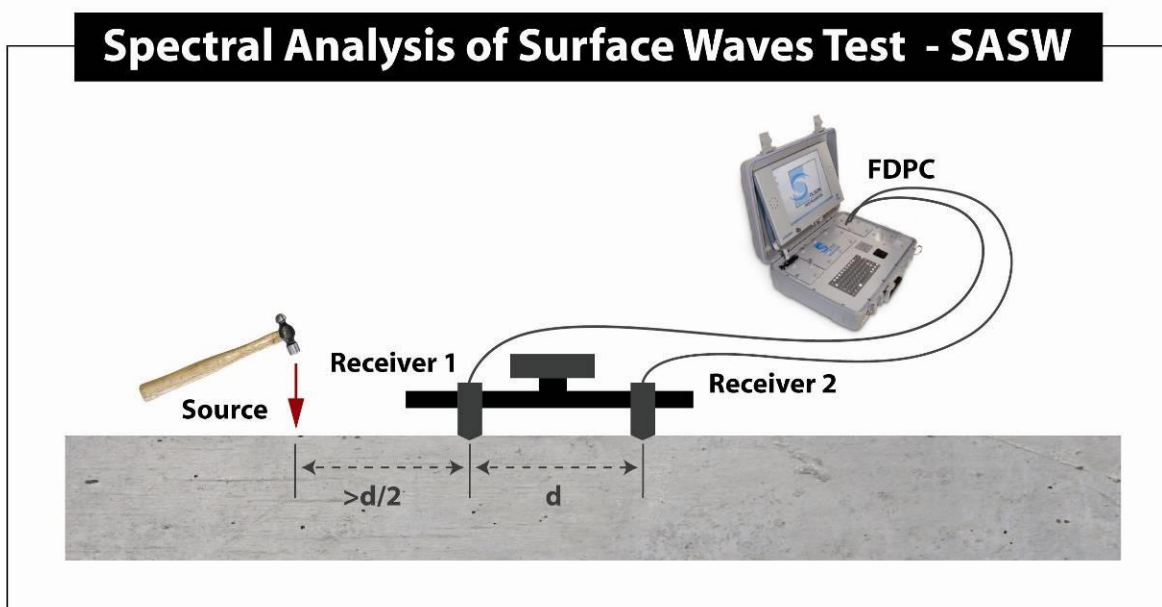


Figure 6: Spectral Analysis of Surface Waves (SASW) test set-up diagram with Freedom Data PC, SASW-S bar and ballpeen impact source.



Figure 7: Archived photograph of Spectral Analysis of Surface Waves (SASW) testing across lift lines of a concrete structure using small impact source and SASW bar (from another project).

Surface wave (also termed Rayleigh; R-wave) velocity will vary with frequency in a layered system with differing velocities. This variation in velocity with frequency is termed dispersion. A plot of surface wave velocity versus wavelength is called a dispersion curve. The dispersion curve plots are the basis of the data analysis and are used to determine the concrete's overall condition. In a semi-homogeneous material such as concrete the wavelength of the surface wave is approximately equal to the penetration depth, therefore the dispersion curve can be evaluated as a plot of material velocity versus depth from the test surface. However, during data interpretation it is important to understand that longer wavelength velocities are affected by all material between the associated wavelength (depth) and the test surface.

The distance between receivers affects the penetration depth of the test, typically wavelengths of up to 2.0 and even 3 times the receiver spacing can be evaluated depending upon the noise level in the data. A small to medium size steel ball-peen hammer is typically used as an

impact source with the ball tip to induce the measured surface waves. The hammer strike must be in-line with the two transducers in order to ensure that the wave travel distance between receivers is accurate. The hammer size is chosen based upon the frequencies of interest (desired penetration depth) and is therefore also correlated with the receiver spacing. For greater penetration wider receiver spacings and larger impact hammers are used.

Wavelength (λ), frequency (f), and wave velocity (V_r), are related as follows:

$$V_r = f * \lambda \quad (1)$$

The SASW testing and analysis included collection of field data in situ and the construction of experimental dispersion curves at each test point from the field data. The dispersion curve plots were used during data analysis to evaluate the concrete condition. The SASW field tests for this investigation were conducted with an Olson Instruments Freedom Data PC test system in concert with our SASW bar testing system. The system was used to digitize the analog receiver outputs and record the signals for later spectral (frequency) analysis. The phase information of the transfer function (cross power spectrum) between the two receivers for each frequency was the key spectral measurement. The experimental dispersion curve is developed from the phase data for a given site by knowing the phase (ϕ) at a given frequency (f) and then calculating the travel time (t) between receivers of that frequency/wavelength by:

$$t = \phi / 360 * f \quad (2)$$

Surface wave velocity (V_r) is obtained by dividing the receiver spacing (X) by the travel time at a frequency:

$$V_r = X / t \quad (3)$$

The wavelength (λ) is related to the velocity and frequency as shown in equation 2 above.

By repeating the above procedure for any given frequency, the surface wave velocity corresponding to a given wavelength is evaluated, and the dispersion curve is determined. The phase data was viewed on the PC data acquisition system in the field to ensure that acceptable data was being collected. The phase data was then returned to our office for further processing. The phase of the cross power spectrum (transfer function) between the two receivers and the coherence

function are used to create the dispersion curves by masking unwanted (noisy or nonlinear) portions of the phase record from the data set for each test location and then performing the above calculations to determine the surface wave velocity for all relevant frequencies.

The SASW test evaluates the average velocity or condition between the two receivers, therefore the further apart the receivers (greater penetration depth) the larger the area evaluated. The average surface wave velocity of the concrete and any areas or zones throughout the depth of the structure with changing velocity indicates varying conditions. These conditions may include voids, honeycombed concrete, weak concrete material, cracking and other anomalies that reduce the velocity of the concrete. The SASW test can also be used to test across cracks perpendicular to the test surface to evaluate the penetration depth of the crack or similarly across cold-joints to measure the integrity of the joint. As in many methods of testing, an increase in penetration depth also becomes a loss in resolution (average over greater distance).

CLOSURE

The field portion of this NDE investigation was performed in accordance with generally accepted testing procedures. If additional information is developed that is pertinent to the findings of this investigation or we can provide any additional information or consultation on potential repairs, please contact our office.

Respectfully submitted,

OLSON ENGINEERING, INC.



Mason Timm
Staff Engineer



Patrick K. Miller, P.E.
Senior Engineer



Larry D. Olson, P.E.
Chief Engineer



11-27-2019

(1 copy emailed)

**APPENDIX A:
GRAPHICAL PLOTS OF
SPECTRAL ANALYSIS OF SURFACE WAVES (SASW) RESULTS**

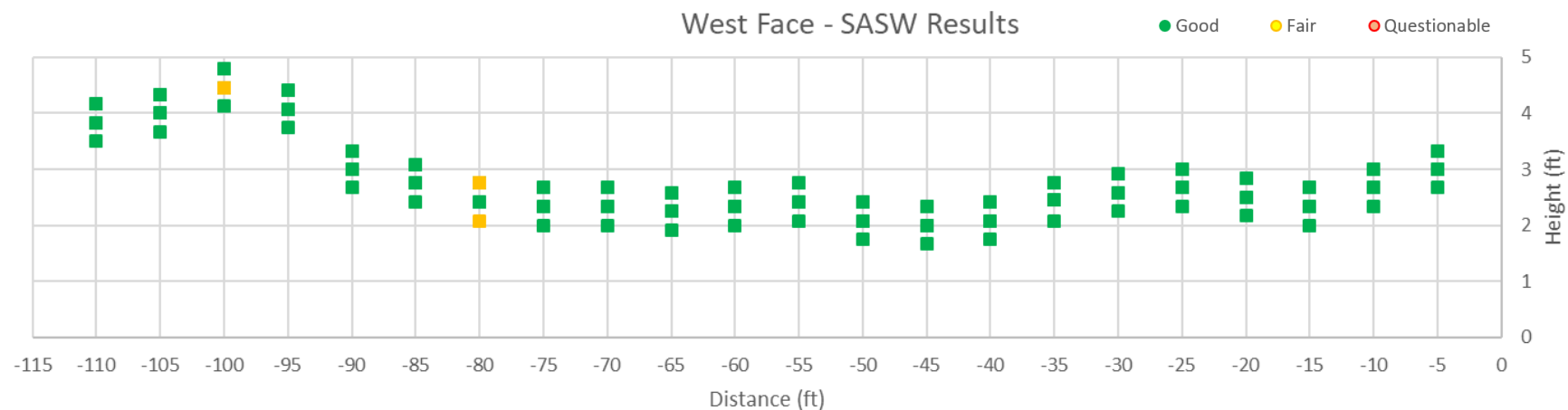


Figure A1: West Face SASW Test Results. X = 0 is at the south end, Y = 0 is at bottom of pier cap. Note that if a Fair and Good result occurs at the same location (different transducer spacings), only the Fair result is shown. The center results are for vertical tests across the lift joint with the SASW Bar with the other results above and below the lift line.

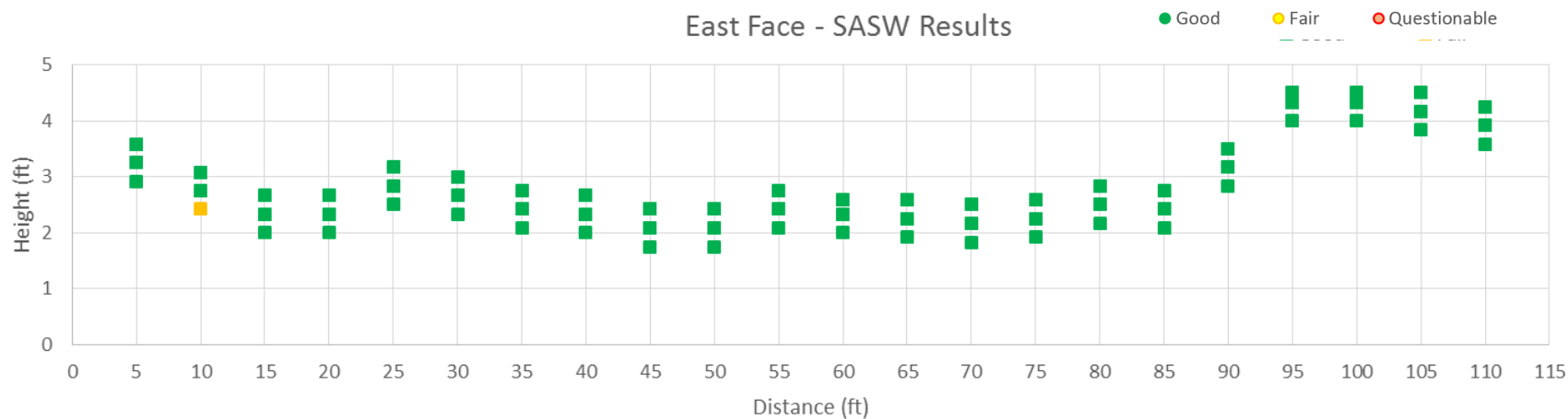


Figure A2: East Face SASW Test Results. X = 0 is at the south end, Y = 0 is at bottom of pier cap. Note that if a Fair and Good result occurs at the same location (different transducer spacings), only the Fair result is shown. The center results are for vertical tests across the lift joint with the SASW Bar.

APPENDIX B:
TABULATED SPECTRAL ANALYSES OF SURFACE WAVES (SASW)
RESULTS

Table B1: East Wall Tabulated SASW Results

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_111	110	3.67	Horizontal Below	0.984	20	8200	Good	
saw_112	110	4.33	Horizontal Above	0.984	20	8200	Good	
saw_113	110	4	Vertical Across	0.984	18	8000	Good	
saw_114	110	4.33	Horizontal Above	2.62	45	8000	Good	
saw_115	110	4	Vertical Across	2.62	45	8000	Good	
saw_116	105	4.33	Horizontal Above	2.62	42	8000	Good	
saw_117	105	4	Vertical Across	2.62	50	8000	Good	
saw_118	105	4.33	Horizontal Above	0.984	20	8000	Good	
saw_119	105	3.67	Horizontal Below	0.984	18	8100	Good	
saw_120	105	4	Vertical Across	0.984	19	8100	Good	
saw_121	100	4.5	Horizontal Above	0.984	20	8000	Good	
saw_122	100	4	Horizontal Below	0.984	18	8200	Good	
saw_123	100	4.33	Vertical Across	0.984	18	7600	Good	
saw_124	100	4.5	Horizontal Above	2.62	45	7900	Good	
saw_125	100	4.33	Vertical Across	2.62	50	8100	Good	
saw_126	95	4.5	Horizontal Above	2.62	50	7200	Good	
saw_127	95	4.33	Vertical Across	2.62	50	8300	Good	
saw_128	95	4.5	Horizontal Above	0.984	22	7600	Good	
saw_129	95	4	Horizontal Below	0.984	18	7500	Good	
saw_130	95	4.33	Vertical Across	0.984	18	7900	Good	
saw_131	90	4.75	Horizontal Above	0.984	19	7600	Good	
saw_132	90	4.08	Horizontal Below	0.984	18	7400	Good	
saw_133	90	4.42	Vertical Across	0.984	20	8100	Good	
saw_134	90	4.75	Horizontal Above	2.62	47	8000	Good	
saw_135	90	4.42	Vertical Across	2.62	42	7900	Good	

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_136	85	2.75	Horizontal Above	2.62	42	7900	Good	
saw_137	85	2.42	Vertical Across	2.62	47	7900	Good	
saw_138	85	2.75	Horizontal Above	0.984	17	8000	Good	
saw_139	85	2.08	Horizontal Below	0.984	17	8100	Good	
saw_140	85	2.42	Vertical Across	0.984	17	8000	Good	
saw_141	80	2.83	Horizontal Above	0.984	19	8200	Good	
saw_142	80	2.17	Horizontal Below	0.984	21	8100	Good	
saw_143	80	2.5	Vertical Across	0.984	20	8100	Good	
saw_144	80	2.83	Horizontal Above	2.62	45	7500	Good	
saw_145	80	2.5	Vertical Across	2.62	45	7800	Good	
saw_146	75	2.58	Horizontal Above	2.62	42	7900	Good	
saw_147	75	2.25	Vertical Across	2.62	40	7900	Good	
saw_148	75	2.58	Horizontal Above	0.984	18	7600	Good	
saw_149	75	1.92	Horizontal Below	0.984	21	8100	Good	
saw_150	75	2.25	Vertical Across	0.984	18	8000	Good	
saw_151	70	2.5	Horizontal Above	0.984	20	8300	Good	
saw_152	70	1.83	Horizontal Below	0.984	18	8200	Good	
saw_153	70	2.17	Vertical Across	0.984	18	8000	Good	
saw_154	70	2.5	Horizontal Above	2.62	38	7800	Good	
saw_155	70	2.17	Vertical Across	2.62	35	8000	Good	
saw_156	65	2.58	Horizontal Above	2.62	45	7900	Good	
saw_157	65	2.25	Vertical Across	2.62	40	7600	Good	
saw_158	65	2.58	Horizontal Above	0.984	20	7700	Good	
saw_159	65	1.92	Horizontal Below	0.984	18	7400	Good	
saw_160	65	2.25	Vertical Across	0.984	18	8000	Good	
saw_161	60	2.58	Horizontal Above	0.984	22	8500	Good	

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_162	60	2	Horizontal Below	0.984	20	8100	Good	
saw_163	60	2.33	Vertical Across	0.984	18	8000	Good	
saw_164	60	2.58	Horizontal Above	2.62	48	7700	Good	
saw_165	60	2.33	Vertical Across	2.62	45	8100	Good	
saw_166	55	2.75	Horizontal Above	2.62	46	7900	Good	
saw_167	55	2.42	Vertical Across	2.62	45	7900	Good	
saw_168	55	2.75	Horizontal Above	0.984	18	8200	Good	
saw_169	55	2.08	Horizontal Below	0.984	21	8400	Good	
saw_170	55	2.42	Vertical Across	0.984	18	7800	Good	
saw_171	50	2.42	Horizontal Above	0.984	16	7200	Good	
saw_172	50	1.75	Horizontal Below	0.984	17	7500	Good	
saw_173	50	2.08	Vertical Across	0.984	19	8200	Good	
saw_174	50	2.42	Horizontal Above	2.62	42	7500	Good	
saw_175	50	2.08	Vertical Across	2.62	48	8200	Good	
saw_176	45	2.42	Horizontal Above	2.62	45	8000	Good	
saw_177	45	2.08	Vertical Across	2.62	44	7900	Good	
saw_178	45	2.42	Horizontal Above	0.984	20	8200	Good	
saw_179	45	1.75	Horizontal Below	0.984	20	7500	Good	
saw_180	45	2.08	Vertical Across	0.984	18	7800	Good	
saw_181	40	2.67	Horizontal Above	0.984	20	8000	Good	
saw_182	40	2	Horizontal Below	0.984	21	8000	Good	
saw_183	40	2.33	Vertical Across	0.984	18	7800	Good	
saw_184	40	2.67	Horizontal Above	2.62	35	7900	Good	
saw_185	40	2.33	Vertical Across	2.62	42	7900	Good	
saw_186	35	2.75	Horizontal Above	2.62	38	7900	Good	
saw_187	35	2.42	Vertical Across	2.62	37	7900	Good	

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_188	35	2.75	Horizontal Above	0.984	18	8100	Good	
saw_189	35	2.08	Horizontal Below	0.984	20	8000	Good	
saw_190	35	2.42	Vertical Across	0.984	18	7900	Good	
saw_191	30	3	Horizontal Above	0.984	18	8000	Good	
saw_192	30	2.33	Horizontal Below	0.984	18	8100	Good	
saw_193	30	2.67	Vertical Across	0.984	18	7900	Good	
saw_194	30	3	Horizontal Above	2.62	45	7800	Good	
saw_195	30	2.67	Vertical Across	2.62	45	8000	Good	
saw_196	25	3.17	Horizontal Above	2.62	38	7900	Good	
saw_197	25	2.83	Vertical Across	2.62	40	7900	Good	
saw_198	25	3.17	Horizontal Above	0.984	20	7300	Good	
saw_199	25	2.5	Horizontal Below	0.984	16	7200	Good	
saw_200	25	2.83	Vertical Across	0.984	19	7900	Good	
saw_201	20	2.67	Horizontal Above	0.984	19	8100	Good	
saw_202	20	2	Horizontal Below	0.984	18	8000	Good	
saw_203	20	2.33	Vertical Across	0.984	20	8100	Good	
saw_204	20	2.67	Horizontal Above	2.62	43	7500	Good	
saw_205	20	2.33	Vertical Across	2.62	43	7900	Good	
saw_206	15	2.67	Horizontal Above	2.62	41	8000	Good	
saw_207	15	2.33	Vertical Across	2.62	45	7900	Good	
saw_208	15	2.67	Horizontal Above	0.984	20	8300	Good	
saw_209	15	2	Horizontal Below	0.984	20	7900	Good	
saw_210	15	2.33	Vertical Across	0.984	18	7700	Good	
saw_211	10	3.08	Horizontal Above	0.984	18	8100	Good	
saw_212	10	2.42	Horizontal Below	0.984	20	7500	Fair	Velocity drop near surface
saw_213	10	2.75	Vertical Across	0.984	20	8100	Good	

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_214	10	3.08	Horizontal Above	2.62	38	8000	Good	
saw_215	10	2.75	Vertical Across	2.62	40	8100	Good	
saw_216	5	3.58	Horizontal Above	2.62	42	8000	Good	
saw_217	5	3.25	Vertical Across	2.62	42	8100	Good	
saw_218	5	3.58	Horizontal Above	0.984	18	8100	Good	
saw_219	5	2.92	Horizontal Below	0.984	20	8200	Good	
saw_220	5	3.25	Vertical Across	0.984	18	8100	Good	
Total:							110	
Good							109	99.1%
Fair							1	0.9%
Questionable							0	0.0%

Table B2: Pier Cap 1 West Face Tabulated SASW Results

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_1	5	2.67	Horizontal Below	0.984	37	8700	Good	
saw_2	5	3.33	Horizontal Above	0.984	20	8700	Good	
saw_3	5	3	Vertical Across	0.984	19	8000	Good	
saw_4	5	3.33	Horizontal Above	2.62	45	7600	Good	
saw_5	5	3	Vertical Across	2.62	45	7900	Good	
saw_6	10	3	Horizontal Above	2.62	60	8000	Good	
saw_7	10	2.67	Vertical Across	2.62	60	7700	Good	
saw_8	10	3	Horizontal Above	0.984	20	8300	Good	
saw_9	10	2.33	Horizontal Below	0.984	22	8000	Good	
saw_10	10	2.67	Vertical Across	0.984	22	8400	Good	
saw_11	15	2.67	Horizontal Above	0.984	30	8100	Good	
saw_12	15	2	Horizontal Below	0.984	35	8500	Good	
saw_13	15	2.33	Vertical Across	0.984	22	7500	Good	
saw_14	15	2.67	Horizontal Above	2.62	50	7200	Good	
saw_15	15	2.33	Vertical Across	2.62	53	8500	Good	
saw_16	20	2.83	Horizontal Above	2.62	52	7600	Good	
saw_17	20	2.5	Vertical Across	2.62	52	7600	Good	
saw_18	20	2.83	Horizontal Above	0.984	22	7500	Good	
saw_19	20	2.17	Horizontal Below	0.984	24	8300	Good	
saw_20	20	2.5	Vertical Across	0.984	22	7700	Good	
saw_21	25	3	Horizontal Above	0.984	22	7200	Good	
saw_22	25	2.33	Horizontal Below	0.984	20	7500	Good	
saw_23	25	2.67	Vertical Across	0.984	22	8000	Good	
saw_24	25	3	Horizontal Above	2.62	50	7500	Good	
saw_25	25	2.67	Vertical Across	2.62	48	7600	Good	

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_26	30	2.92	Horizontal Above	2.62	52	7900	Good	
saw_27	30	2.58	Vertical Across	2.62	50	7500	Good	
saw_28	30	2.92	Horizontal Above	0.984	20	7400	Good	
saw_29	30	2.25	Horizontal Below	0.984	20	8100	Good	
saw_30	30	2.58	Vertical Across	0.984	22	7900	Good	
saw_31	35	2.75	Horizontal Above	0.984	22	7800	Good	
saw_32	35	2.08	Horizontal Below	0.984	20	7900	Good	
saw_33	35	2.45	Vertical Across	0.984	20	7600	Good	
saw_34	35	2.75	Horizontal Above	2.62	50	7800	Good	
saw_35	35	2.45	Vertical Across	2.62	48	7700	Good	
saw_36	40	2.42	Horizontal Above	2.62	48	7800	Good	
saw_37	40	2.08	Vertical Across	2.62	50	7800	Good	
saw_38	40	2.42	Horizontal Above	0.984	20	8000	Good	
saw_39	40	1.75	Horizontal Below	0.984	24	7700	Good	
saw_40	40	2.08	Vertical Across	0.984	21	7200	Good	
saw_41	45	2.33	Horizontal Above	0.984	20	8100	Good	
saw_42	45	1.67	Horizontal Below	0.984	21	8000	Good	
saw_43	45	2	Vertical Across	0.984	20	7800	Good	
saw_44	45	2.33	Horizontal Above	2.62	50	7800	Good	
saw_45	45	2	Vertical Across	2.62	52	7500	Good	
saw_46	50	2.42	Horizontal Above	2.62	55	7300	Good	Near Horizontal Core 3
saw_47	50	2.08	Vertical Across	2.62	48	7700	Good	
saw_48	50	2.42	Horizontal Above	0.984	24	7900	Good	
saw_49	50	1.75	Horizontal Below	0.984	20	8000	Good	
saw_50	50	2.08	Vertical Across	0.984	24	7600	Good	

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_51	55	2.75	Horizontal Above	0.984	20	8000	Good	Near Horizontal Core 3
saw_52	55	2.08	Horizontal Below	0.984	20	8500	Good	
saw_53	55	2.42	Vertical Across	0.984	20	8000	Good	
saw_54	55	2.75	Horizontal Above	2.62	50	7900	Good	
saw_55	55	2.42	Vertical Across	2.62	50	7900	Good	
saw_56	60	2.67	Horizontal Above	2.62	45	7600	Good	
saw_57	60	2.33	Vertical Across	2.62	45	7900	Good	
saw_58	60	2.67	Horizontal Above	0.984	22	8500	Good	
saw_59	60	2	Horizontal Below	0.984	24	8200	Good	
saw_60	60	2.33	Vertical Across	0.984	21	8000	Good	
saw_61	65	2.58	Horizontal Above	0.984	19	7900	Good	
saw_62	65	1.92	Horizontal Below	0.984	18	7800	Good	
saw_63	65	2.25	Vertical Across	0.984	20	8200	Good	
saw_64	65	2.58	Horizontal Above	2.62	48	7700	Good	
saw_65	65	2.25	Vertical Across	2.62	54	7600	Good	
saw_66	70	2.67	Horizontal Above	2.62	46	7800	Good	
saw_67	70	2.33	Vertical Across	2.62	45	7800	Good	
saw_68	70	2.67	Horizontal Above	0.984	20	8000	Good	
saw_69	70	2	Horizontal Below	0.984	18	8200	Good	
saw_70	70	2.33	Vertical Across	0.984	18	8000	Good	
saw_71	75	2.67	Horizontal Above	0.984	20	8000	Good	
saw_72	75	2	Horizontal Below	0.984	18	8000	Good	
saw_73	75	2.33	Vertical Across	0.984	18	8000	Good	
saw_74	75	2.67	Horizontal Above	2.62	35	7800	Good	
saw_75	75	2.33	Vertical Across	2.62	48	7900	Good	

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_76	80	2.75	Horizontal Above	2.62	52	7700	Good	Near Horizontal Core 2 velocity drop near surface Velocity drop @ 14" deep, then Good beyond
saw_77	80	2.42	Vertical Across	2.62	45	7500	Good	
saw_78	80	2.75	Horizontal Above	0.984	19	7200	Fair	
saw_79	80	2.08	Horizontal Below	0.984	15	7800	Fair	
saw_80	80	2.42	Vertical Across	0.984	20	8500	Good	
saw_81	85	3.08	Horizontal Above	0.984	18	7900	Good	
saw_82	85	2.42	Horizontal Below	0.984	18	7600	Good	
saw_83	85	2.75	Vertical Across	0.984	20	8400	Good	
saw_84	85	3.08	Horizontal Above	2.62	52	7500	Good	
saw_85	85	2.75	Vertical Across	2.62	50	8000	Good	
saw_86	90	3.17	Horizontal Above	2.62	45	7600	Good	
saw_87	90	2.83	Vertical Across	2.62	45	7900	Good	
saw_88	90	3.17	Horizontal Above	0.984	20	8000	Good	
saw_89	90	2.42	Horizontal Below	0.984	20	8000	Good	
saw_90	90	2.83	Vertical Across	0.984	18	8000	Good	
saw_91	95	2.83	Horizontal Above	0.984	20	8500	Good	
saw_92	95	2.25	Horizontal Below	0.984	20	8100	Good	
saw_93	95	2.58	Vertical Across	0.984	18	7600	Good	
saw_94	95	2.83	Horizontal Above	2.62	40	7900	Good	
saw_95	95	2.58	Vertical Across	2.62	50	7500	Good	
saw_96	100	2.67	Horizontal Above	2.62	50	7900	Good	
saw_97	100	2.33	Vertical Across	2.62	47	7200	Good	
saw_98	100	2.67	Horizontal Above	0.984	20	8000	Good	
saw_99	100	2	Horizontal Below	0.984	20	8000	Good	

File	Distance from South End (ft)	Height above bottom of pier cap (ft)	Test Location Notes (relative to lift line)	Transducer Spacing (ft)	Measurement Depth (in)	Average Velocity (ft/sec)	Condition	Analysis Notes
saw_100	100	2.33	Vertical Across	0.984	23	7200	Fair	velocity drop near 10 " deep near Horizontal Core 1
saw_101	105	3.08	Horizontal Above	0.984	20	8300	Good	
saw_102	105	2.42	Horizontal Below	0.984	20	8500	Good	
saw_103	105	2.75	Vertical Across	0.984	22	7500	Good	
saw_104	105	3.08	Horizontal Above	2.62	50	8300	Good	
saw_105	105	2.75	Vertical Across	2.62	45	7800	Good	
saw_106	110	3.58	Horizontal Above	2.62	42	7900	Good	
saw_107	110	3.25	Vertical Across	2.62	45	7800	Good	
saw_108	110	3.58	Horizontal Above	0.984	20	8200	Good	
saw_109	110	2.92	Horizontal Below	0.984	20	7900	Good	
saw_110	110	3.25	Vertical Across	0.984	21	7800	Good	
Total:							110	
Good							107	97.3%
Fair							3	2.7%
Questionable							0	0.0%

Attachment D –
PMJV Letter dated September 6, 2019

Attachment E –
PMJV Letter dated September 24, 2019

1499 West 120th Avenue, Suite 200, Westminster, CO 80234

November 27, 2019

Via Email Only to: CESWL-WCWebmaster@usace.army.mil
US Army Corp of Engineers
Engineering and Construction Division
Hydraulics and Technical Services Branch
CESWL-WC
(501) 324-6235

RE: Increased water releases from White River Dams, dated Nov. 20, 2019

Dear Sir/Madam:

The news release published November 20, 2019 came to our attention on November 25, 2019. Our company, the Parsons-Mahan Joint Venture (PMJV) has a contract with Arkansas Dept of Transportation (ArDOT) to build a new bridge for I-40 over the White River near river mile 126, between Hazen, AR and Brinkley, AR.

This planned release comes at a time when the structural steel is temporarily vulnerable because it sits on temporary shoring towers on the river side. The 2019 and 2018 flood events on site have brought numerous large and small logs downstream and present an imminent danger if they lodged in the temporary shoring towers and caused a collapse. Gauge elevation 21' at Newport will result in water overtopping work roads, preventing crane and truck access to the jobsite. ***PMJV is respectfully requesting that water releases at Bull Shoals Dam currently scheduled for 11-27-19 be postponed for 14-calendar days to allow PMJV to set the 10 beams which would stabilize the steel in place from risk of collapse into the White River.***



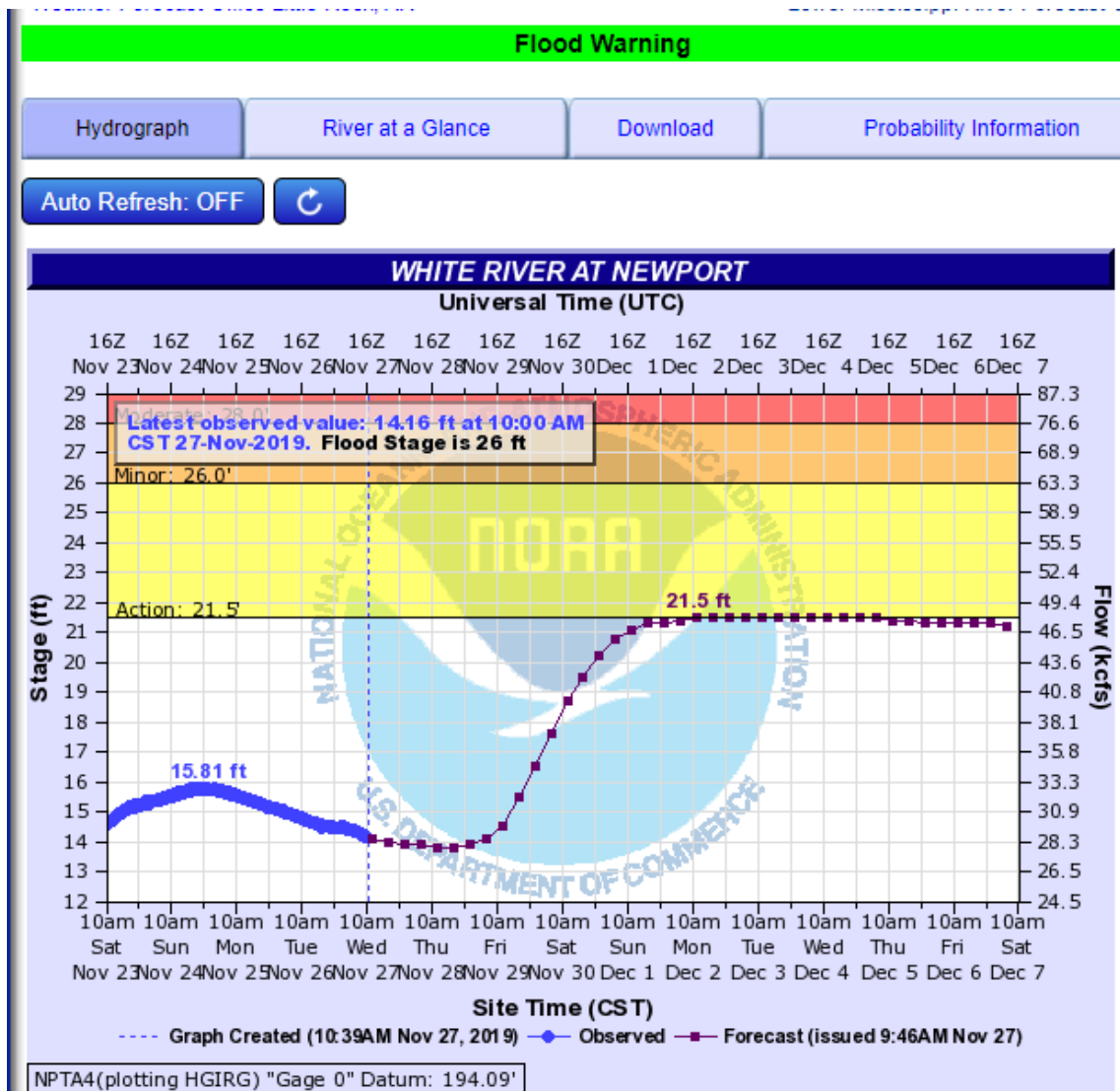
1. Photo of current conditions at White River Bridge jobsite with steel set on temporary shoring towers



2. Example of 2019 flood conditions near normal river channel, photo taken 3-18-2019, 25 days after cresting 2' over this trestle



3. Close up of built up debris from 2019 flood conditions, photo taken 3-28-2019



White River elevation information released this morning

Thank you for considering my request.

Sincerely,

Michael Hernandez, P.E.
PMJV Project Manager
Mobile: 720-576-6802

cc: Colton Cowles & Mark Trickey, Resident Engineers office 61 Arkansas DOT
Jerry Trotter, Construction Division Head, Arkansas DOT
Emanuel Banks, Deputy Director and Chief Engineer Arkansas DOT
Gary Yancer, Randy Schultz, Tony Geach, Doug McCrae, Kevin Wiley, Michelle Epstein & Mike Currie of Parsons-Mahan Joint Venture
Bradley Copenhaver of Vezina, Lawrence & Piscitelli



US Army Corps
of Engineers®

U.S. Army Corps of Engineers Little Rock District

News Release

Increased water releases from White River Dams

Published Nov. 20, 2019



News Release Images

LITTLE ROCK, Ark. --

The Army Corps of Engineers, Little Rock District will begin increasing releases from Bull Shoals and Norfork dams on Nov. 28 as downstream regulating stages are set to increase Dec. 1.

Landowners should prepare for a 21-foot regulating stage at Newport, a 31-foot stage at Augusta and 21-foot stage at Georgetown from Dec. 1 to April 14. These are normal regulating stages for this time of year.

The Corps will maintain these stages until the flood storage is evacuated from the upper White River Lakes.

For more information on the White River System plan of operation please visit our Water Management website at <http://www.swl-wc.usace.army.mil/>

Contact

Public Affairs

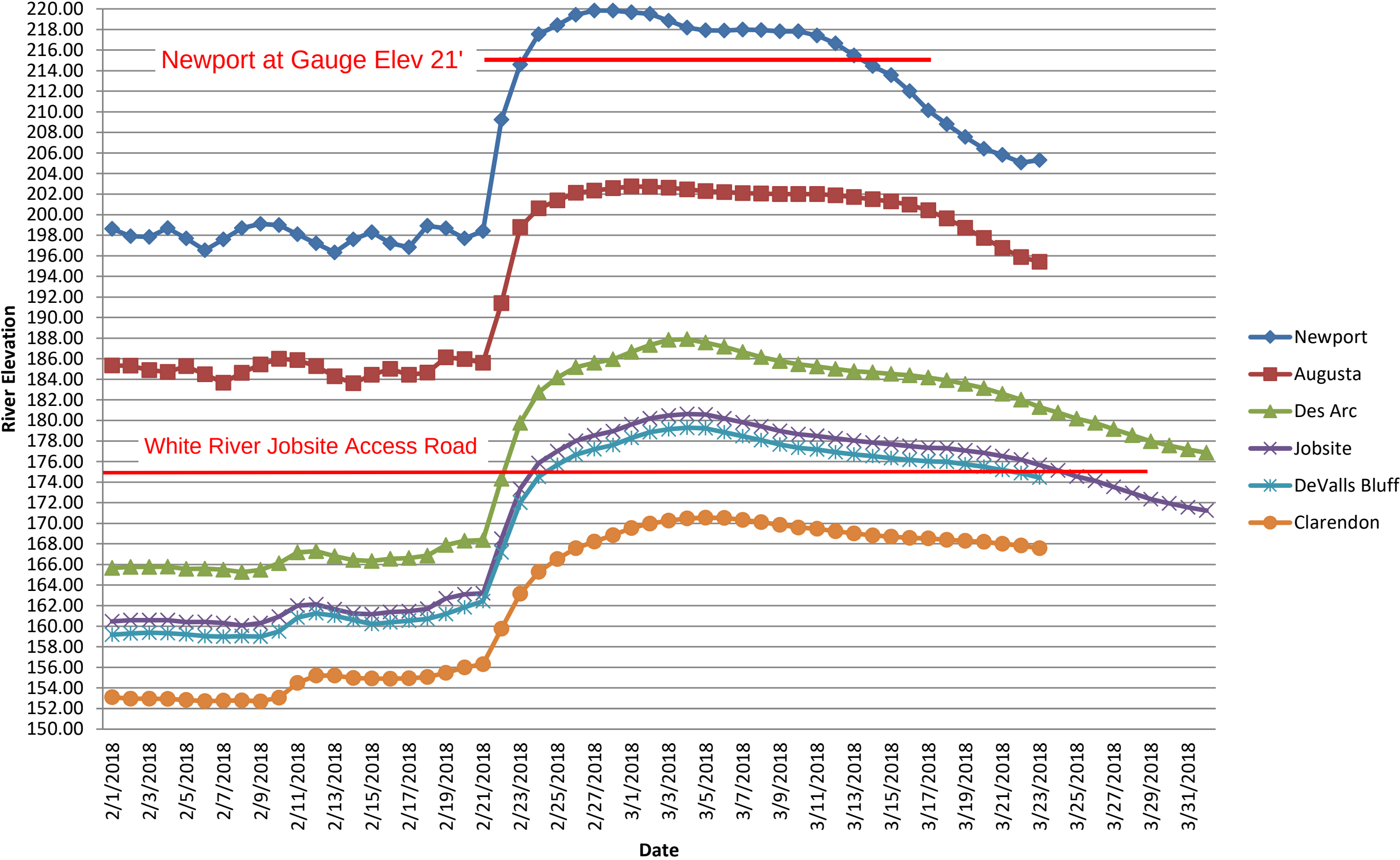
501-324-5551

501-563-6835 (cell)

Release no. 19-195

White River Elevation Tracking

As of 03/23/2018

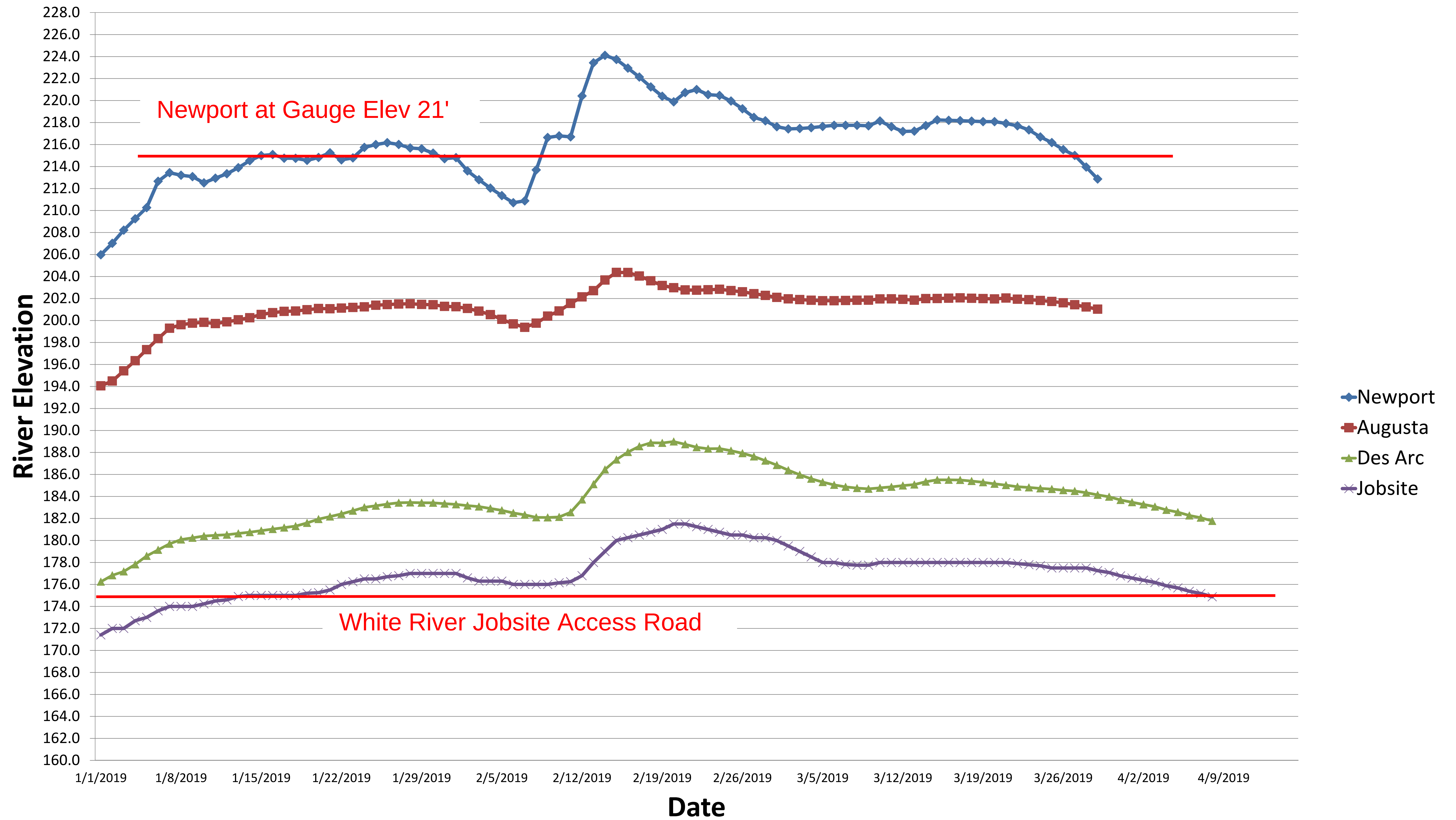


White River Elevation Tracking

	White River At Newport, AR		White River At Augusta, AR		White River At Des Arc, AR		White River Jobsite
Flood Stage		26.00		26.00		24.00	177.00
Action Stage		21.50		25.50		23.00	
Gauge		WR111 Newport		WR112 Augusta		WR114 Des Arc	Jobsite
River Mile		254.80		201.70		143.20	126.60
Gauge Zero		194.09		169.85		159.87	N/A
Date/Time	Stage	Elevation	Stage	Elevation	Stage	Elevation	Elevation
2/22/2018	15.13	209.22	21.54	191.39	14.45	174.32	168.49
2/23/2018	20.50	214.59	28.95	198.80	19.88	179.75	173.34
2/24/2018	23.45	217.54	30.75	200.60	22.87	182.74	175.85
2/25/2018	24.34	218.43	31.53	201.38	24.29	184.16	177.02
2/26/2018	25.34	219.43	32.27	202.12	25.30	185.17	178.01
2/27/2018	25.74	219.83	32.49	202.34	25.74	185.61	178.54
2/28/2018	25.75	219.84	32.72	202.57	26.06	185.93	178.94
3/1/2018	25.58	219.67	32.88	202.73	26.79	186.66	179.62
3/2/2018	25.44	219.53	32.86	202.71	27.46	187.33	180.19
3/3/2018	24.77	218.86	32.76	202.61	27.96	187.83	180.48
3/4/2018	24.08	218.17	32.60	202.45	28.02	187.89	180.62
3/5/2018	23.82	217.91	32.44	202.29	27.70	187.57	180.57
3/6/2018	23.80	217.89	32.34	202.19	27.28	187.15	180.19
3/7/2018	23.89	217.98	32.25	202.10	26.79	186.66	179.81
3/8/2018	23.84	217.93	32.20	202.05	26.29	186.16	179.42
3/9/2018	23.73	217.82	32.16	202.01	25.91	185.78	178.98
3/10/2018	23.72	217.81	32.16	202.01	25.59	185.46	178.67
3/11/2018	23.32	217.41	32.14	201.99	25.37	185.24	178.50
3/12/2018	22.57	216.66	32.04	201.89	25.14	185.01	178.25
3/13/2018	21.39	215.48	31.86	201.71	24.93	184.80	178.04
3/14/2018	20.35	214.44	31.65	201.50	24.80	184.67	177.85
3/15/2018	19.46	213.55	31.42	201.27	24.66	184.53	177.68
3/16/2018	17.92	212.01	31.12	200.97	24.50	184.37	177.51
3/17/2018	16.04	210.13	30.58	200.43	24.30	184.17	177.35
3/18/2018	14.71	208.80	29.77	199.62	24.03	183.90	177.30
3/19/2018	13.46	207.55	28.86	198.71	23.68	183.55	177.07
3/20/2018	12.32	206.41	27.88	197.73	23.27	183.14	176.84
3/21/2018	11.71	205.80	26.91	196.76	22.72	182.59	176.53
3/22/2018	10.97	205.06	26.02	195.87	22.13	182.00	176.20
3/23/2018	11.21	205.30	25.56	195.41	21.42	181.29	175.66

White River Elevation Tracking

As of 03-29-2019



White River Elevation Tracking

	White River At Newport, AR		White River At Augusta, AR		White River At Des Arc, AR		White River Jobsite
Flood Stage		26.00		26.00		24.00	177.00
Action Stage		21.50		25.50		23.00	
Gauge		WR111 Newport		WR112 Augusta		WR114 Des Arc	Jobsite
River Mile		254.80		201.70		143.20	126.60
Gauge Zero		194.09		169.85		159.87	N/A
Date/Time	Stage	Elevation	Stage	Elevation	Stage	Elevation	Elevation
2/1/2019	20.72	214.81	31.40	201.25	23.41	183.28	177.00
2/2/2019	19.51	213.60	31.25	201.10	23.30	183.17	176.60
2/3/2019	18.71	212.80	31.00	200.85	23.21	183.08	176.30
2/4/2019	17.95	212.04	30.68	200.53	23.04	182.91	176.30
2/5/2019	17.27	211.36	30.26	200.11	22.87	182.74	176.30
2/6/2019	16.62	210.71	29.84	199.69	22.63	182.50	176.00
2/7/2019	16.79	210.88	29.53	199.38	22.46	182.33	176.00
2/8/2019	19.60	213.69	29.91	199.76	22.23	182.10	176.00
2/9/2019	22.55	216.64	30.55	200.40	22.22	182.09	176.00
2/10/2019	22.70	216.79	31.02	200.87	22.26	182.13	176.15
2/11/2019	22.61	216.70	31.70	201.55	22.69	182.56	176.25
2/12/2019	26.33	220.42	32.30	202.15	23.85	183.72	176.80
2/13/2019	29.34	223.43	32.86	202.71	25.24	185.11	178.00
2/14/2019	30.02	224.11	33.83	203.68	26.58	186.45	179.00
2/15/2019	29.65	223.74	34.52	204.37	27.48	187.35	180.00
2/16/2019	28.86	222.95	34.51	204.36	28.16	188.03	180.25
2/17/2019	28.05	222.14	34.19	204.04	28.69	188.56	180.50
2/18/2019	27.15	221.24	33.76	203.61	29.01	188.88	180.75
2/19/2019	26.30	220.39	33.33	203.18	29.00	188.87	181.00
2/20/2019	25.79	219.88	33.13	202.98	29.12	188.99	181.50
2/21/2019	26.63	220.72	32.93	202.78	28.87	188.74	181.50
2/22/2019	26.91	221.00	32.91	202.76	28.60	188.47	181.25
2/23/2019	26.45	220.54	32.94	202.79	28.47	188.34	181.00
2/24/2019	26.37	220.46	32.99	202.84	28.48	188.35	180.75
2/25/2019	25.87	219.96	32.87	202.72	28.29	188.16	180.50
2/26/2019	25.16	219.25	32.76	202.61	28.06	187.93	180.50
2/27/2019	24.38	218.47	32.59	202.44	27.76	187.63	180.25
2/28/2019	24.07	218.16	32.43	202.28	27.38	187.25	180.25
3/1/2019	23.53	217.62	32.25	202.10	26.98	186.85	180.00
3/2/2019	23.33	217.42	32.12	201.97	26.52	186.39	179.50
3/3/2019	23.37	217.46	32.05	201.90	26.10	185.97	179.00
3/4/2019	23.44	217.53	31.99	201.84	25.74	185.61	178.50
3/5/2019	23.55	217.64	31.95	201.80	25.43	185.30	178.00
3/6/2019	23.66	217.75	31.95	201.80	25.18	185.05	178.00
3/7/2019	23.66	217.75	31.97	201.82	25.00	184.87	177.82
3/8/2019	23.66	217.75	31.99	201.84	24.89	184.76	177.75
3/9/2019	23.61	217.70	32.00	201.85	24.82	184.69	177.75
3/10/2019	24.05	218.14	32.11	201.96	24.91	184.78	178.00
3/11/2019	23.53	217.62	32.12	201.97	25.00	184.87	178.00
3/12/2019	23.10	217.19	32.07	201.92	25.12	184.99	178.00
3/13/2019	23.13	217.22	32.00	201.85	25.21	185.08	178.00
3/14/2019	23.63	217.72	32.14	201.99	25.47	185.34	178.00
3/15/2019	24.15	218.24	32.15	202.00	25.64	185.51	178.00
3/16/2019	24.11	218.20	32.18	202.03	25.64	185.51	178.00
3/17/2019	24.08	218.17	32.21	202.06	25.63	185.50	178.00
3/18/2019	24.04	218.13	32.17	202.02	25.53	185.40	178.00
3/19/2019	23.99	218.08	32.14	201.99	25.42	185.29	178.00
3/20/2019	23.99	218.08	32.11	201.96	25.28	185.15	178.00
3/21/2019	23.83	217.92	32.19	202.04	25.16	185.03	178.00
3/22/2019	23.61	217.70	32.09	201.94	25.02	184.89	177.90
3/23/2019	23.24	217.33	32.04	201.89	24.95	184.82	177.80
3/24/2019	22.60	216.69	31.97	201.82	24.86	184.73	177.70
3/25/2019	22.09	216.18	31.88	201.73	24.80	184.67	177.50
3/26/2019	21.45	215.54	31.76	201.61	24.70	184.57	177.50
3/27/2019	20.92	215.01	31.58	201.43	24.62	184.49	177.50
3/28/2019	19.86	213.95	31.38	201.23	24.47	184.34	177.50
3/29/2019	18.78	212.87	31.18	201.03	24.27	184.14	177.25

Hernandez, Michael

From: Hernandez, Michael
Sent: Wednesday, November 27, 2019 11:55 AM
To: nathaniel.a.keen@usace.army.mil
Subject: FW: Urgent request that water releases at Bull Shoals Dam be postponed for 14 calendar days
Attachments: Request to USACE to postpone releases at Bull Shoals Dam Final.pdf
Importance: High

Michael Hernandez, P.E.
Sr. Project Manager, PMJV
White River Bridge
1554 Mammoth Rd
Hazen, AR 72064
(720) 576-6802



From: Hernandez, Michael
Sent: Wednesday, November 27, 2019 11:46 AM
To: CESWL-WCWebmaster@usace.army.mil
Cc: Banks, Emanuel <Emanuel.Banks@ardot.gov>; Cowles, Colton L. <Colton.Cowles@ardot.gov>; Trickey, Mark <Mark.Trickey@ardot.gov>; Trotter, Jerry W. - Construction <Jerry.Trotter@ardot.gov>; Gary Yancer <GYancer@cjmahan.com>; Doug McCrae <DMcCrae@cjmahan.com>; Schultz, Randy <Randy.Schultz@parsons.com>; Geach, Tony <Tony.Geach@parsons.com>; Brad Copenhaver <BCopenhaver@vlplaw.com>; Epstein, Michelle <Michelle.Epstein@parsons.com>; Mike Currie <mcurrie@westpatrick.com>; Richardson, Scott <srichardson@cjmahan.com>; Osman, Mohammed <Mohammed.Osman@parsons.com>
Subject: Urgent request that water releases at Bull Shoals Dam be postponed for 14 calendar days
Importance: High

The Parsons-Mahan JV, contractor for Arkansas Dept. of Transportation for new I-40 bridge over The White River, river mile 126, is respectfully requesting that water releases planned for 11/27/19 from Bull Shoals Dam be postponed for 14 calendar days to allow us to set the 10 beams which would stabilize the structural steel in place from risk of collapse into the White River.

See attached letter.

Michael Hernandez, P.E.
Sr. Project Manager, PMJV
White River Bridge
1554 Mammoth Rd
Hazen, AR 72064
(720) 576-6802

Hernandez, Michael

From: Gary Yancer <GYancer@cjmahan.com>
Sent: Monday, December 2, 2019 9:46 AM
To: Banks, Emanuel
Cc: Geach, Tony; Hernandez, Michael; Trotter, Jerry W. - Construction
Subject: [EXTERNAL] FW: Urgent request that water releases at Bull Shoals Dam ... - White River jobsite will flood again
Attachments: Request to USACE to postpone releases at Bull Shoals Dam Final.pdf

Emanuel –

FYI – In order to protect the partially erected span currently sitting on shoring towers in the river, and lacking any response from the Department to the below email from Mike Hernandez from last Wednesday, be advised we are moving forward with erection of 10 girder segments on Pier 1. This action is necessary to ensure that the erected steel will remain stable should the temporary shoring towers be compromised during the upcoming high-water event, which is forecast to reach the project site late this week. As you should be aware, the Corps of Engineers has denied our request to delay their scheduled release of water from Bull Shoals.

Last Wednesday I also sent you additional information regarding testing that was performed on the Pier 1 Cap, and which further supports our position that there is no justification for the Department's directive to remove and replace the cap. Please call me as soon as possible after you have had a chance to review that information.

Thanks – Gary
PJMV Board of Managers

Gary D. Yancer, P.E. | Managing Partner



250 N. Hartford Ave,
Columbus, OH 43222
C 614.314.3626

www.cjmahan.com [cjmahan.com]

From: Hernandez, Michael <Michael.Hernandez@parsons.com>
Sent: Wednesday, November 27, 2019 3:25 PM
To: Banks, Emanuel <Emanuel.Banks@ardot.gov>; Cowles, Colton L. <Colton.Cowles@ardot.gov>; Trickey, Mark <Mark.Trickey@ardot.gov>; Dather, Brent <Brent.Dather@dot.gov>; Trotter, Jerry W. - Construction <Jerry.Trotter@ardot.gov>; Gary Yancer <GYancer@cjmahan.com>; Doug McCrae <DMcCrae@cjmahan.com>; Schultz, Randy <Randy.Schultz@parsons.com>; Geach, Tony <Tony.Geach@parsons.com>; Brad Copenhagen <BCopenhagen@vlplaw.com>; Epstein, Michelle <Michelle.Epstein@parsons.com>; Mike Currie <mcurrie@westpatrick.com>; Scott Richardson <SRichardson@cjmahan.com>; Osman, Mohammed <Mohammed.Osman@parsons.com>; Joe Costa <JCosta@cjmahan.com>; Forthman, Megan <Megan.Forthman@parsons.com>; Asher, Mark A. <Mark.Asher@jacobs.com>; Gastoni, Vincent <Vincent.Gastoni@parsons.com>; Mike Horne <MHorne@cjmahan.com>; Witte, Brian <Brian.Witte@parsons.com>;

Bravo, Herman <Herman.Bravo@parsons.com>

Subject: Urgent request that water releases at Bull Shoals Dam ... - White River jobsite will flood again

Bottom line, the experts are telling us we will absolutely lose access the west half of the project and Pier 1 due to flooding as soon as this weekend, as late as next Sunday 12/8/19, for a while.

If we don't set beams next week there is a risk of collapse of 1.5 million+ lbs of structural steel into the river if the temporary shoring towers are compromised by river flow and/or debris.

The P.E. who stamped the steel erecting plan states with any less than all 10 beams to Pier 1 the structural steel is unstable if the temp shoring towers are damaged.

The sooner we tell AFCO "bring them" the better they are to arrange for expedited delivery.

Or we take our chances.

***Mr. Emanuel Banks,
May PMJV set steel over Pier 1?***



White River Bridge project BB0610 11/2019

***Scott and Joe,
Prepare demobilization of Bent 1 – Pier 1.***

Michael Hernandez, P.E.
Sr. Project Manager, PMJV
White River Bridge
1554 Mammoth Rd
Hazen, AR 72064
(720) 576-6802

-----Original Message-----

From: Keen, Nathaniel A CIV USARMY CESWL (USA) <Nathaniel.A.Keen@usace.army.mil>

Sent: Wednesday, November 27, 2019 12:53 PM

To: Hernandez, Michael <Michael.Hernandez@parsons.com>

Cc: Banks, Emanuel <Emanuel.Banks@ardot.gov>; Cowles, Colton L. <Colton.Cowles@ardot.gov>; Trickey, Mark

<Mark.Trickey@ardot.gov>; Trotter, Jerry W. - Construction <Jerry.Trotter@ardot.gov>; Gary Yancer <GYancer@cmjahan.com>; Doug McCrae <DMcCrae@cmjahan.com>; Schultz, Randy <Randy.Schultz@parsons.com>; Geach, Tony <Tony.Geach@parsons.com>; Brad Copenhaver <BCopenhaver@vlplaw.com>; Epstein, Michelle <Michelle.Epstein@parsons.com>; Mike Currie <mcurrie@westpatrick.com>; Richardson, Scott <srichardson@cmjahan.com>; Osman, Mohammed <Mohammed.Osman@parsons.com>
Subject: [EXTERNAL] RE: Urgent request that water releases at Bull Shoals Dam be postponed for 14 calendar days (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

CLASSIFICATION: UNCLASSIFIED

Mr. Hernandez,

This email is to summarize our phone conversation. Per discussion with the National Weather Service, the peak stage elevation near Des Arc (forecast point upstream of the I-40 bridge project) is anticipated to be about 22' with or without a deviation from Bull Shoals/Norfork. USACE anticipates at least one lake upstream of Bull Shoals exceeding flood storage limits within the next 48-hours. Given these two facts, Little Rock District does NOT intend to pursue a deviation request to postpone targeting 21' at Newport.

In our conversation, you indicated that a rise of about 5' would overtop work roads. Adding 5' to the current 17.3', indicates that the forecast peak could impact the work roads. NWS publishes a probabilistic river forecast for Des Arc (see link below). While the most likely scenario is that impact would happen around 8DEC, the probabilistic forecasts indicates 22' could be exceeded as early as this weekend.

https://urldefense.proofpoint.com/v2/url?u=https-3A__water.weather.gov_ahps2_probability-5Finformation.php-3Fwfo-3DIzk-26gage-3Ddsca4-26graph-5Fid-3D3&d=DwIFAg&c=Nwf-pp4xtYRe0sCRVM8_LWH54joYF7EKmrYldfxlq10&r=lzG-wGbHeSom84vgJyJBWvYeflsr84mi4MP9Ud_RvLo&m=oGwICK_yDvuuS-X9JfhwNPrfcm_OC_YKkG7nuRrhZuc&s=_QN0oSzihbEhyxj51ztKEhHqgoLNTul1HmY6zDN4C-E&e=

As upstream conditions change, please do not hesitate to reach out to us again.

Respectfully,

Nathaniel Keen, P.E.
Chief, Water Management Section
US Army Corp of Engineers - Little Rock District
501.324.6235
700 W Capitol; PO Box 867
Little Rock, AR 72203

https://urldefense.proofpoint.com/v2/url?u=https-3A__www.youtube.com_watch-3Fv-3DqOTYgcdNrXE&d=DwIFAg&c=Nwf-pp4xtYRe0sCRVM8_LWH54joYF7EKmrYldfxlq10&r=lzG-wGbHeSom84vgJyJBWvYeflsr84mi4MP9Ud_RvLo&m=oGwICK_yDvuuS-X9JfhwNPrfcm_OC_YKkG7nuRrhZuc&s=78hny7RY20igSGnLYcEXxeAz92Lo3BFyARhFeNGcNk&e=

-----Original Message-----

From: Hernandez, Michael [mailto:Michael.Hernandez@parsons.com]
Sent: Wednesday, November 27, 2019 12:55 PM
To: Keen, Nathaniel A CIV USARMY CESWL (USA) <Nathaniel.A.Keen@usace.army.mil>

Subject: [Non-DoD Source] FW: Urgent request that water releases at Bull Shoals Dam be postponed for 14 calendar days

Importance: High

Michael Hernandez, P.E.

Sr. Project Manager, PMJV

White River Bridge

1554 Mammoth Rd

Hazen, AR 72064

(720) 576-6802

From: Hernandez, Michael

Sent: Wednesday, November 27, 2019 11:46 AM

To: CESWL-WCWebmaster@usace.army.mil

Cc: Banks, Emanuel <Emanuel.Banks@ardot.gov>; Cowles, Colton L. <Colton.Cowles@ardot.gov>; Trickey, Mark <Mark.Trickey@ardot.gov>; Trotter, Jerry W. - Construction <Jerry.Trotter@ardot.gov>; Gary Yancer <GYancer@cjmahan.com>; Doug McCrae <DMcCrae@cjmahan.com>; Schultz, Randy <Randy.Schultz@parsons.com>; Geach, Tony <Tony.Geach@parsons.com>; Brad Copenhaver <BCopenhaver@vlplaw.com>; Epstein, Michelle <Michelle.Epstein@parsons.com>; Mike Currie <mcurrie@westpatrick.com>; Richardson, Scott <srichardson@cjmahan.com>; Osman, Mohammed <Mohammed.Osman@parsons.com>

Subject: Urgent request that water releases at Bull Shoals Dam be postponed for 14 calendar days

Importance: High

The Parsons-Mahan JV, contractor for Arkansas Dept. of Transportation for new I-40 bridge over The White River, river mile 126, is respectfully requesting that water releases planned for 11/27/19 from Bull Shoals Dam be postponed for 14 calendar days to allow us to set the 10 beams which would stabilize the structural steel in place from risk of collapse into the White River.

See attached letter.

Michael Hernandez, P.E.

Sr. Project Manager, PMJV

White River Bridge

1554 Mammoth Rd

Hazen, AR 72064

(720) 576-6802

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CLASSIFICATION: UNCLASSIFIED

CLASSIFICATION: UNCLASSIFIED

1499 West 120th Avenue, Suite 200, Westminster, CO 80234

December 3, 2019

Colonel Eric M. Noe
Commander of Little Rock District
US Army Corp of Engineers

RE: Increased water releases from White River Dams
Dear Colonel Noe,

Our company, the Parsons-Mahan Joint Venture (PMJV) has a contract with Arkansas Dept of Transportation (ArDOT) to build a new bridge for I-40 over the White River near river mile 126, between Hazen, AR and Brinkley, AR. Last week we became aware of the public announcement of releases from Bull Shoals and Norfolk dams, which target a 21-foot regulated stage at Newport. On 11/27/19 PMJV requested to Nathaniel Keen, P.E., Chief, Water Management Section, to postpone releases all for 14 days.

PMJV is respectfully requesting that water releases at Bull Shoals Dam, currently in progress, be set to 17-foot regulated stage at Newport until 12/10/19 to facilitate setting of structural steel downstream at the new I-40 White River Bridge. This planned release comes at a time when the structural steel is temporarily vulnerable because it sits on temporary shoring towers on the river side. The 2019 and 2018 flood events on site have brought numerous large and small logs downstream and present an imminent danger if they lodged in the temporary shoring towers and caused a collapse.



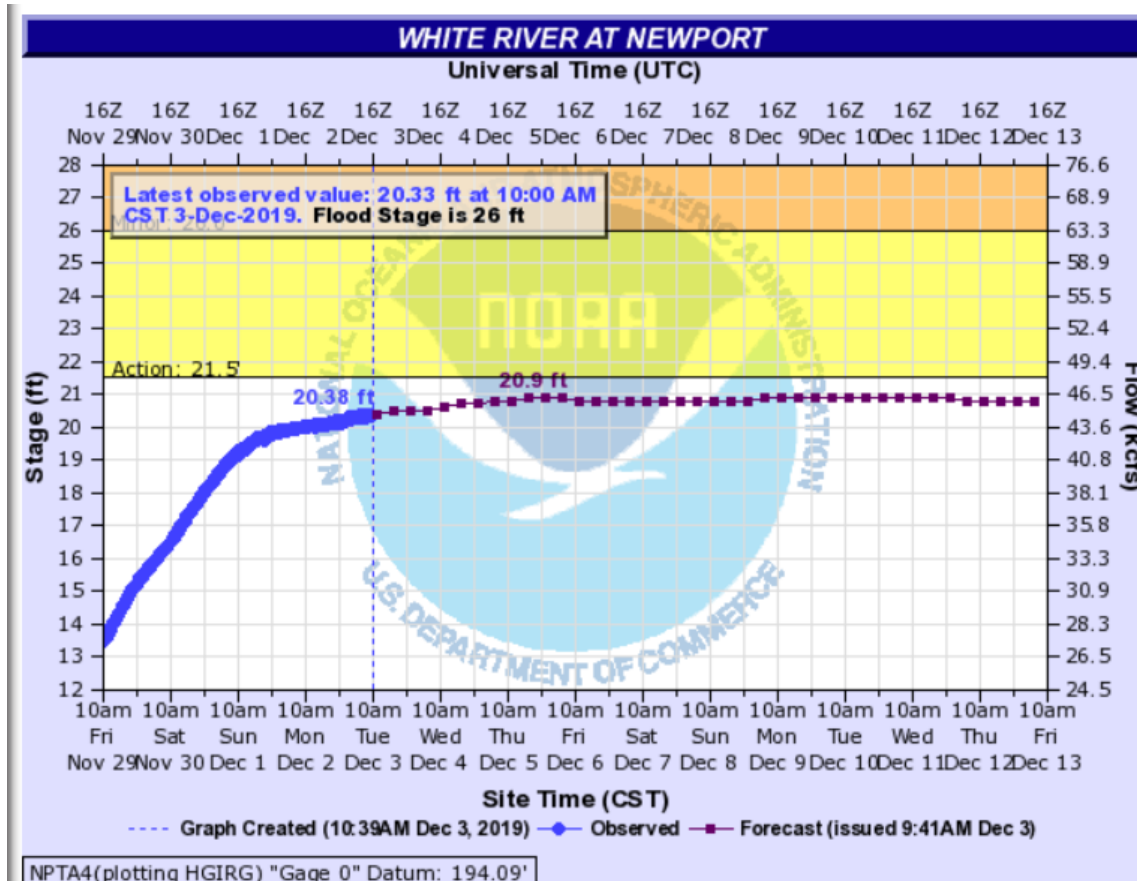
1. Photo of conditions 12/3/19 at White River Bridge jobsite with steel set on temporary shoring towers



2. View looking upriver at temporary shoring towers which will be overtopped by Newport 21'. Condition will be stable after 10 steel beams are set to concrete pier in the river



3. Example of 2019 flood conditions at Pier 1. Photo taken 3-28-2019, 35 days after cresting 2' over this trestle.



White River elevation information released this morning

Thank you for considering my request.

Sincerely,

Michael Hernandez, P.E.
PMJV Project Manager
Mobile: 720-576-6802

cc: Colton Cowles & Mark Trickey, Resident Engineers office 61 Arkansas DOT
Jerry Trotter, Construction Division Head, Arkansas DOT
Emanuel Banks, Deputy Director and Chief Engineer Arkansas DOT
Gary Yancer, Randy Schultz, Tony Geach, Doug McCrae, Kevin Wiley, Michelle Epstein & Mike Currie of Parsons-Mahan Joint Venture
Bradley Copenhaver of Vezina, Lawrence & Piscitelli

PMJV 12-03-19 Attachment US Army Corps of Engineers News
Release dated 11-20-19 of increased water discharged from Bull Shoals
Reservoir 2 pages removed, also in 11-27-19 letter to USACE

Hernandez, Michael

From: Hernandez, Michael
Sent: Tuesday, December 3, 2019 2:04 PM
To: eric.m.noe@usace.army.mil
Cc: nathaniel.a.keen@usace.army.mil; Banks, Emanuel; Gary Yancer; Geach, Tony; Doug McCrae; Schultz, Randy; Osman, Mohammed
Subject: FW: Urgent request reduce releases at Bull Shoals Dam until 12/10/19
Attachments: Request to USACE to slow releases at Bull Shoals Dam 12-03-19 .pdf
Importance: High

Sensitive

Colonel Noe,
PMJV is respectfully requesting that water releases at Bull Shoals Dam, currently in progress, be set to 17-foot regulated stage at Newport until 12/10/19 to facilitate setting of structural steel downstream at the new I-40 White River Bridge, White River mile 126.

Michael Hernandez, P.E.
Sr. Project Manager, PMJV
White River Bridge
1554 Mammoth Rd
Hazen, AR 72064
(720) 576-6802



-----Original Message-----

From: Keen, Nathaniel A CIV USARMY CESWL (USA) <Nathaniel.A.Keen@usace.army.mil>
Sent: Wednesday, November 27, 2019 1:53 PM
To: Hernandez, Michael <Michael.Hernandez@parsons.com>
Cc: Banks, Emanuel <Emanuel.Banks@ardot.gov>; Cowles, Colton L. <Colton.Cowles@ardot.gov>; Trickey, Mark <Mark.Trickey@ardot.gov>; Trotter, Jerry W. - Construction <Jerry.Trotter@ardot.gov>; Gary Yancer <GYancer@cjmahan.com>; Doug McCrae <DMcCrae@cjmahan.com>; Schultz, Randy <Randy.Schultz@parsons.com>; Geach, Tony <Tony.Geach@parsons.com>; Brad Copenhaver <BCopenhaver@vlplaw.com>; Epstein, Michelle <Michelle.Epstein@parsons.com>; Mike Currie <mcurrie@westpatrick.com>; Richardson, Scott <srichardson@cjmahan.com>; Osman, Mohammed <Mohammed.Osman@parsons.com>
Subject: [EXTERNAL] RE: Urgent request that water releases at Bull Shoals Dam be postponed for 14 calendar days (UNCLASSIFIED)

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storage limits within the next 48-hours. Given these two facts, Little Rock District does NOT intend to pursue a deviation request to postpone targeting 21' at Newport.

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https://urldefense.proofpoint.com/v2/url?u=https-3A__water.weather.gov_ahps2_probability-5Finformation.php-3Fwfo-3DIzk-26gage-3Ddsc4-26graph-5Fid-3D3&d=DwIFAg&c=Nwf-pp4xtYRe0sCRVM8_LWH54joYF7EKmrYldfxlq10&r=lzG-wGbHeSom84vgJyJBWvYeflsr84mi4MP9Ud_RvLo&m=oGwICK_yDvuuS-X9JfhwnPrfcm_OC_YKkG7nuRrhzuc&s=_QN0oSzihbEhyxj51ztkEhHqgoLNTul1HmY6zDN4C-E&e=

As upstream conditions change, please do not hesitate to reach out to us again.

Respectfully,

Nathaniel Keen, P.E.
Chief, Water Management Section
US Army Corp of Engineers - Little Rock District
501.324.6235
700 W Capitol; PO Box 867
Little Rock, AR 72203

https://urldefense.proofpoint.com/v2/url?u=https-3A__www.youtube.com_watch-3Fv-3DqOTYgcdNrXE&d=DwIFAg&c=Nwf-pp4xtYRe0sCRVM8_LWH54joYF7EKmrYldfxlq10&r=lzG-wGbHeSom84vgJyJBWvYeflsr84mi4MP9Ud_RvLo&m=oGwICK_yDvuuS-X9JfhwnPrfcm_OC_YKkG7nuRrhzuc&s=78hnrY7RY20igSGnLYcEXxeAz92Lo3BFyARhFeNGcNk&e=

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Sent: Wednesday, November 27, 2019 12:55 PM
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Subject: [Non-DoD Source] FW: Urgent request that water releases at Bull Shoals Dam be postponed for 14 calendar days
Importance: High

Michael Hernandez, P.E.

Sr. Project Manager, PMJV

White River Bridge

1554 Mammoth Rd

MEETING MINUTES

SUBJECT: PMJV/ARDOT Owner's Meeting

MEETING DATE: 12/17/2019

LOCATION: PMJV Field Office

PREPARED BY: Megan Cavazos Forthman

DATE: 12/17/19

ATTENDEES

NAME	ORGANIZATION
Colton Cowles	ARDOT
Mark Trickey	ARDOT
David Craig	ARDOT
Stewart Schild	ARDOT
Andrew Littleton	ARDOT
Ronald Johnson	ARDOT
Michael Hernandez	PMJV
Megan Cavazos Forthman	PMJV
Mohammed Osman	PMJV
Herman Bravo	PMJV
Scott Richardson	PMJV
John Broadway	API
Cody Harrelson	API

MEETING NOTES

- Schedule Update:
 - PMJV is demobilizing items off the jobsite, staging and loading items at the Batch Plant for permanent demobilization.
 - PMJV Ironworkers are loading and moving the handrails and inspection walkways off the jobsite to the Batch Plant for safe keeping during potential flooding.
 - PMJV is stripping Unit 2 overhang jacks.
 - PMJV is prepping for Gerdan to begin slip forming Unit 4 parapet and median.
 - PMJV is stripping forms from the Bent 14 expansion joint.
 - Girder 9 is being delivered today. Girder 10 will be delivered tomorrow (12/18/19) and they will be installed on Pier 1.

MEETING MINUTES

SUBJECT: PMJV/ARDOT Owner's Meeting
Meeting Date: 12/17/19

- API is laying base on the West side, preparing to install the binder to intermediate surface (not final surface). Pending weather, this will be complete by the end of the week.
- Cambridgemoen has been onsite this week. Today is too cold to grout, the minimum temperature required is 50 degrees. Pending temperatures, Cambridgemoen will grout tomorrow. This should be complete by the end of the week.
- Submittals and RFIs:
 - Sub 669 – PMJV Proposed MOT Plan Final – John B. explained that API will bring in 2 crews so both ends of the bridge can be worked on at the same time. API will use the surface mix in the road. Need to be able to do both lanes the same amount so that when traffic is back on it there is no unevenness in the road. The taper option or vertical curve – ArDOT recommends the vertical curve.
 - Sub 693 – Gerdan Alternate Supplier Transfer Mix Design – Colton C. spoke to Gerdan and the mix has been approved. Gerdan is allowed to begin slipping this week. Working within the spec, with some leeway. The concrete will be double blanketed to maintain temperatures.
- Follow Up Items:
 -
- New Business:
 - John B. asked about the equipment and dumpsters from environmental cleanup blocking the access roads. ArDOT (David C.) will reach out to them and request they move their equipment while API completes asphaltting of the West side.
 - API talking about repairing the East side asphalt. Will use Warm Mix for the replacement, rather than Hot Mix. John B. explained that the chemical hot mix rips and tears when the ground is cool and the air is cool, causing the exterior of the ACHM to cool faster than the center, depending on the thickness of the lift. This is why they will use a ACWM to repair, because the mix stays soft even at lower temperatures. ACWM is sold as a compaction aid. Colton C. stated the preferred method would be to keep the mixes consistent throughout the bridge. John B. stated it depends on the time of year and time of day that paving is happening. Switching from ACHM to ACWM until further notice. David C. confirmed the widths have been corrected for the West side. John B. takes responsibility for the extra width – this was done to ensure the surface would be wide enough for traffic.
 - David C. asked that asphalt spoils be placed in one location, not on material that may be used again. Cody H. confirmed the location spoils will be dropped.
 - Discussion of erosion control fabric to be used at the median barrier down the slope – minimize damage to embankments, especially while the job is flooded.

MEETING MINUTES

SUBJECT: PMJV/ARDOT Owner's Meeting
Meeting Date: 12/17/19

- CONFIDENTIAL until 12/20: PMJV will do a major craft layoff this Friday, 12/20/19. PMJV has accomplished everything that can be done until it can be known that the river is not going to rise. It seems to have crested for a little while. Bull Shoals is still discharging at 26,000 CFS; however, the White River is showing a drop of 10' over the next 10 days. PMJV has set steel to Pier 1 to stabilize the shoring towers. This will be covered by protection of insured property. PMJV does not feel comfortable removing this steel to expose the shoring towers until June. PMJV would be back at this current location, assuming removal of the Pier 1 Cap, in October 2020, which would bring the project end date to potentially late 2021, pending 2 6-month flood seasons. PMJV will need 130 days to go backwards, take off Pier 1 cap, and put the steel back to current condition. The alternative is to continue with steel and take the river as it comes, as Unit 3 structure would not become vulnerable during this flood season. PMJV will NOT be installing the 30' stub outs at this time. PMJV's best plan for removing the Pier 1 cap is saw cutting in about 11 pieces, making them light enough for the 2250 to bring them down. There are constraints on the weight of the pieces and using barges. All pier cap reinforcing steel would need to be replaced.
- David C. asked about the bearing pad at Girder 10 on Bent 9. Mohammed O. confirmed that DS Brown has done an analysis and will provide a letter confirming the structural integrity of the bearing pad.
- ArDOT official holidays are Christmas Eve, Christmas Day and New Year's Day.

1499 West 120th Avenue, Suite 200, Westminster, CO 80234

February 7, 2020

Mr. Emanuel Banks, P.E.
Deputy Director and Chief Engineer
Arkansas Department of Transportation
10324 Interstate 30 / P.O. Box 2261
Little Rock, AR 72203-2261

Re: Job No. BB0610 FAP NHPP-40-4(81)200 White River Structure and Approaches
Pier 1 Pier Cap – Directive to Remove and Replace

Dear Mr. Banks:

As I informed you via email on December 2, 2019, in anticipation of high-water conditions forecast for the site within the following week, and pending your final decision on acceptance of the Pier 1 Cap, we were forced to complete the structural steel erection across Pier 1 in order to stabilize and protect the partially erected structural steel the adjacent span 9. As I explained in my email, at that time the partially erected steel in the span 9 was supported on shoring towers within the waterway, and therefore exposed to potentially catastrophic collapse were the shoring towers to be damaged or displaced by forces associated with high flow velocities combined with drift accumulation. Although not approved by the Department in advance, these measures were absolutely necessary in order to protect the work in accordance with our obligations under Specification Section 107.16. Accordingly, on December 4, 2019, we began erection of the remaining steel in span 9.

On December 12, 2019, we received your letter of that date that responded to our request for reconsideration dated November 27, 2019. As you will recall, our November 27th request included newly received non-destructive test results that confirmed conclusively that no cold joint exists within the cap. Incredibly, despite this testing data, and despite the overwhelming body of engineering analysis and opinion provided not only by nationally-recognized structural experts, but also by your own Engineer of Record, that supported leaving the Pier 1 cap in place, your December 12, 2019 letter once again directed the removal and replacement of the cap at our expense. Since that time, we have remained at an impasse regarding reimbursement of the costs and delay impacts associated with your directive.

Over the past two months, given the ongoing threat of persistent high water, the only responsible course of action has been to leave the erected steel in place across Pier 1 until such time as low-water conditions prevail. This has prevented us from pursuing any critical path work on the Project, or complying with your directive to remove the cap. Over the past month, water levels have once again inundated the work roads, making Pier 1 and most of the site inaccessible once again.

Consequently, as I warned you would happen, the Project has been suspended and most of our work force has been laid off. Based on our experience at this site over the past three years, this suspension will likely extend until late spring or early summer, and completion of the Project within the 2020 calendar year is in therefore in doubt at this point, unless the existing pier cap is accepted by the Department.

The Department's position requiring removal and replacement of this cap is untenable given the verification test data and engineering analyses currently in hand, and is borne out of irrational fears as opposed to sound engineering judgment. Rather than exercise such judgment, or collaborate on other reasonable, less-invasive solutions available to it under the Contract, The Department's sole solution is to require complete removal and replacement, and leave the financial consequences to be sorted out by the Arkansas Claims Commission months or years down the road. While certainly expedient and painless for the Department, this approach does nothing to further the ultimate and immediate goal of the project – specifically to remove the high volume of I-40 traffic from a structurally deficient bridge as soon as possible.

Further, your position on this matter completely ignores important provisions of the Specification on which our bid pricing was based. Specifically, Section 107.16, which addresses payment for work damaged by an act of God:

107.16 Contractor's Responsibility for Work. Until final acceptance of the project by the Engineer, the Contractor shall have the charge and care thereof and shall take every precaution against injury, theft, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries, thefts, or damages to any portion of the work occasioned by any of the above causes before final acceptance, and shall bear the expense thereof **except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God**, of the public enemy, or of governmental authorities. (Emphasis added.)

In addition, the Department-directed removal and replacement of this Pier Cap represents a clear case of economic waste in violation of Arkansas law. In Arkansas, the standard measure of damages in construction-contract cases involving new structures is the cost-of-repairs, unless the cost to tear down and re-construct is unreasonable economic waste, then the court will award the difference in market value as a measure of damages.¹ Here, the removal and replacement of the Pier 1 Cap would constitute economic waste as the analyses and empirical evidence noted above demonstrate that removal and replacement will result in zero difference in the ability of the Cap to withstand design loads. Therefore, regardless of whether removal and replacement occurs, the value of the bridge will be exactly the same to the Department, the people of Arkansas, and the traveling public.

¹ See *Page v. Ballard*, 2011 Ark. App. 357, 2 (Ark. Ct. App. 2011); *Williams v. Charles Sloan, Inc.*, 706 S.W.2d 405, 406-407 (Ark. Ct. App. 1986) (“[W]e find that the courts’ preference for the cost of repairs measure and the economic waste exception are devices to avoid the situation where the contractor is required to tear down a structure, or otherwise commit economic waste, to correct a defect that does not detract from the market value as much as it would cost to repair it.”).

Finally, as we have discussed with the Department on several occasions including at the meeting held in Little Rock on November 6, 2019, there are better alternatives available to the Department to provide some “belt and suspenders” retrofit of the pier that could be accomplished concurrently with progressing the remaining superstructure work. These potential solutions include penetrating sealers, carbon-fiber reinforcement, external post-tensioning, installation of a cap extension on the bottom of the cap, and installing strap walls between the columns, to name a few. To be clear, while the testing and engineering performed to date do not justify any of these measures, any one of them would be far less impactful to the schedule and would minimize the cost consequences subject to dispute and resolution at the Claims Commission.

Similarly, since the field testing confirms no “cold joint” exists, and since all of the engineering analyses furnished to date verify that even *if* there did exist a continuous and smooth joint throughout the cap it would still meet the required design capacity, the Department can and should accept the as-built cap as being in reasonably close conformity with the plans and specifications. However, even if the Department continues to refuse to accept those conclusions, it still has the ability under Specification 105.04 to deem the work “reasonably acceptable,” and allow the cap to remain in place with a corresponding cost adjustment. This alternative would not only establish a source of funding for any future maintenance concerns associated with this non-existent joint, but like the options discussed above, this approach would allow the work to continue and complete as soon as possible while minimizing the costs ultimately subject to dispute before the Commission.

As always, we are prepared to further revisit or further develop any of these alternatives as a way around the current impasse, should the Department agree to do so. However, all of these options, and all of the arguments presented herein, have been advanced previously at the highest levels of the Department without resolution. Given the overwhelming body of evidence we have provided to the Department to date, we do not believe it is reasonable or equitable to expect us to bear the financial burden of your directive to remove what has been shown to be a structurally sound pier cap, and then wait months or years to plead the case for compensation to the Arkansas Claims Commission. We also do not agree that your directive is in the best interest of the people of Arkansas, given it will result in keeping the existing, structurally deficient bridge in service for another year or more.

On this basis, and considering the current high-water induced suspension at the site, it is our belief that this matter must be elevated beyond the Department at this time. To this end, be advised that we are pursuing a hearing before the Legislative Oversight Committee for the Arkansas Highway Commission at the earliest open date on the Committee’s schedule.

Sincerely,

PARSONS MAHAN JOINT VENTURE



Gary D. Yancer, P.E.

PMJV Board Member

Managing Partner, C. J. Mahan Construction Co., LLC

PARSONS

Mahan

Joint Venture

WHITE RIVER BRIDGE PIER CAP 1 DELAY

ARKANSAS LEGISLATIVE OVERSIGHT COMMITTEE FOR ARDOT

Presenters Name: Parsons/Mahan Joint Venture

Date: 2/19/2020

PARSONS | Mahan

Joint Venture

- ArDOT I-40 White River Bridge Crossing located in Prairie County Arkansas.
- \$100.6 Million Project Award
- Parsons – Built on a 75-Year foundation of purpose and core values servicing Critical Infrastructure, Defense and Intelligence Markets that employ over 13,000 Engineers, Scientists, Programmers and Trades Craft personnel. Parsons is Considered to be one of the Top Bridge Designers and Builders in the World.
- CJ Mahan Construction Company –For over 40 Yrs. Has specialized in the delivery of complex, award winning and iconic infrastructure projects including four Ohio River crossings, four cable stayed suspension bridges, four long span steel truss structures, and two cast-in-place concrete segmental bridges including the tallest bridge in Virginia. Mahan has delivered hundreds of bridges on major highways and has extensive experience in Cast-in-Place concrete construction including the slab of the IHNC Lake Borne Surge Barrier Gate in New Orleans, the largest-ever continuous concrete placement in the United States



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Background of Pier One Cap of Delay

- ✓ Pier One Cap Poured 8/23/19
- ✓ Pour Delayed 2.5 Hours Due to Lightning Storm (which falls under "Act of God" Provision within the ArDOT Specifications)
- ✓ Important to mention Retarding Agent was used in Mix Design which increases initial set of concrete to 5 hours. PMJV has test results to support this.
- ✓ Owner Verbal notice of Rejection of the Pier 8/26/19
- ✓ Several Rounds of Engineering Analysis provided to Owner with one page (brief) responses rejecting cap ordering "Removal and Replacement at no cost to ArDOT".
- ✓ ArDOT provided little or no comments refuting the Engineering, Non-Destructive Testing Analysis and Structural Recommendation provided by PMJV.





Current Status of Pier One Cap Delay



✓ ARDOT requires the Removal and Replacement of the Cap at no cost to ARDOT. PMJV Position;

- The issue is covered under “Act of God” provision and should be compensated.
- The directive to remove and replace the Cap, based on the Engineering and Testing Data provided, constitutes Economic Waste.



✓ Project is currently shut down due to a High Water Event caused by both USACE (release of Bull Shoals retention into White River) and recent weather impacts.



✓ PMJV is required to protect the existing beams and shoring towers between Pier One and Bent 9 from High Water Impacts and the resulting Debris requiring the remaining beams in the span be set and bolted to prevent potential collapse.

REASONS TO ACCEPT THE CAP

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711



P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

January 30, 2015

Ms. M. Elaine Edwards
Chief, Regulatory Division
Little Rock District Corps of Engineers
P.O. Box 867
Little Rock, AR 72203-0867

RE: AHTD Job Number BB0610
White River Str. & Apprs.(F)
Prairie County

Dear Ms. Edwards:

Enclosed are the Standard Individual Permit Application, Categorical Exclusion, Proposed Construction Plans and supporting illustrations for the referenced project. The proposed AHTD project will **replace the existing structurally deficient bridge over the White River on Interstate 40 in Prairie County.** A detailed project description is included in the enclosed Categorical Exclusion. Total impacts to waters of the United States include 14.47 acres of wetlands and 0.5 acre of other waters. Compensatory mitigation for unavoidable wetland impacts is offered at the Glaise Creek Wetland Mitigation Bank, 164.7 wetland credits (47 acres).

Cost and Schedule Impact



- ✓ Completion in 2020 vs 2021 or worse 2022. Additional one Year Delay Minimum.
- ✓ Claim increase from \$6M to \$12M with Potential to hit \$22M.

Act of God



- ✓ The entire issue is covered under ArDOT Specification for Acts of God which provides relief of responsibility to the Contractor for unforeseeable circumstances.

Economic Waste to Remove and Replace Cap



- ✓ Based on the Engineering Analysis and Non Destructive Testing Results, Removal and Replacement of the Cap would constitute Economic Waste.

Existing I-40 White River Bridge has been classified as "Structurally Deficient".

REASONS TO ACCEPT THE CAP

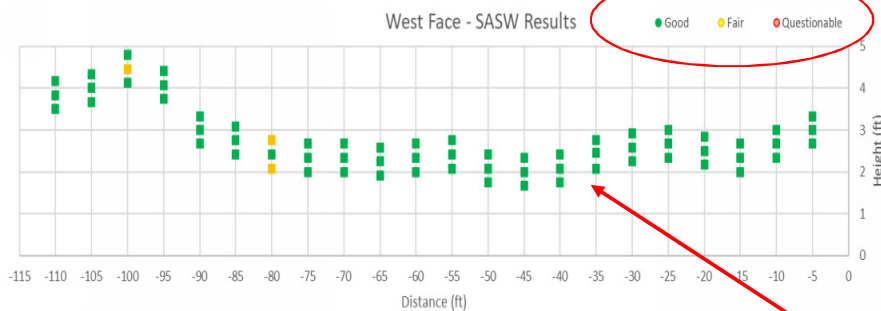


Figure A1: West Face SASW Test Results. X = 0 is at the south end, Y = 0 is at bottom of pier cap. Note that if a Fair and Good result occurs at the same location (different transducer spacings), only the Fair result is shown. The center results are for vertical tests across the lift joint with the SASW Bar with the other results above and below the lift line.

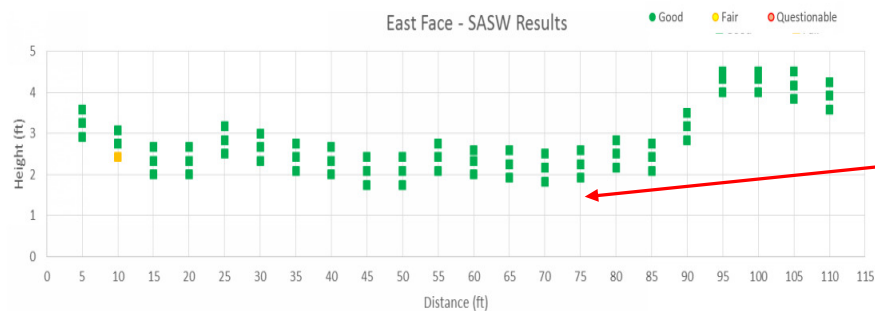


Figure A2: East Face SASW Test Results. X = 0 is at the south end, Y = 0 is at bottom of pier cap. Note that if a Fair and Good result occurs at the same location (different transducer spacings), only the Fair result is shown. The center results are for vertical tests across the lift joint with the SASW Bar.

Engineering Analysis Confirms Structural Compliance to ARDOT, AASHTO & FHWA requirements.

- ✓ PMJV provided additional analysis demonstrating Cap compliance with ArDOT.
- ✓ The Engineer of Record and ArDOT confirmed Cap meets design strength through independent structural analysis provided.
- ✓ PMJV 3rd Party Engineer concurred with PMJV analysis and confirms the Cap meets strength requirements.

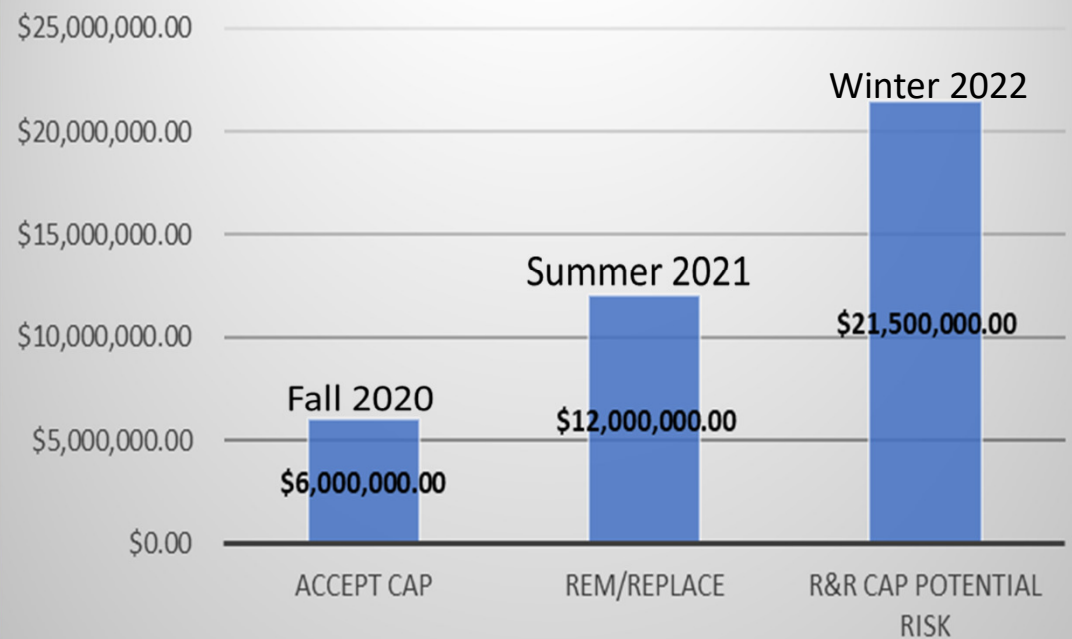
Non-Destructive Sonic Testing and Analysis of the Cap had overwhelming passing results which offset Durability concerns.

- ✓ Test results proved no "Cold Joint" exists. Spectral Analysis of Surface Waves. (SASW)
- ✓ Even if "Cold Joint" concerns exist, there are long term solutions that can be deployed.
 - Cap Sealant, Carbon Fiber Wrap, Post Tensioning etc.,



COST AND SCHEDULE IMPACT OF REMOVING THE CAP

Pier One Delay/Cost Risk Impact



Claim #1 Redesign of Pier Caps to include Pedestal not shown in original design.



Claims #2, 3 and 4 High Water for 2017, 2018 and 2019 shown at High water Elevation. Access Roads fully submerged under water



Claims 2, 3 and 4 High Water for 2017, 2018 and 2019. Access Roads shown at Normal Water Elevation.

FOUR CLAIMS UNSUCCESSFULLY NEGOTIATED

WHITE RIVER BRIDGE

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FOUR PREVIOUS CLAIMS UNSUCCESSFULLY NEGOTIATED

Claim #1 Owner Directed Revision of Pier Caps to Include Pedestals. (\$250K)



- ✓ Owner issued a Revision to the Pier Cap requiring the use of Pedestals which create much more detailed carpentry, Iron work and secondary pours. Actual costs were provided to owner and rejected without negotiation and PMJV was instructed to push claim to Claims Commission.

Claims # 2, 3 and 4 - (2017, 2018 and 2019 High Water Elevation) (Over \$11M.)



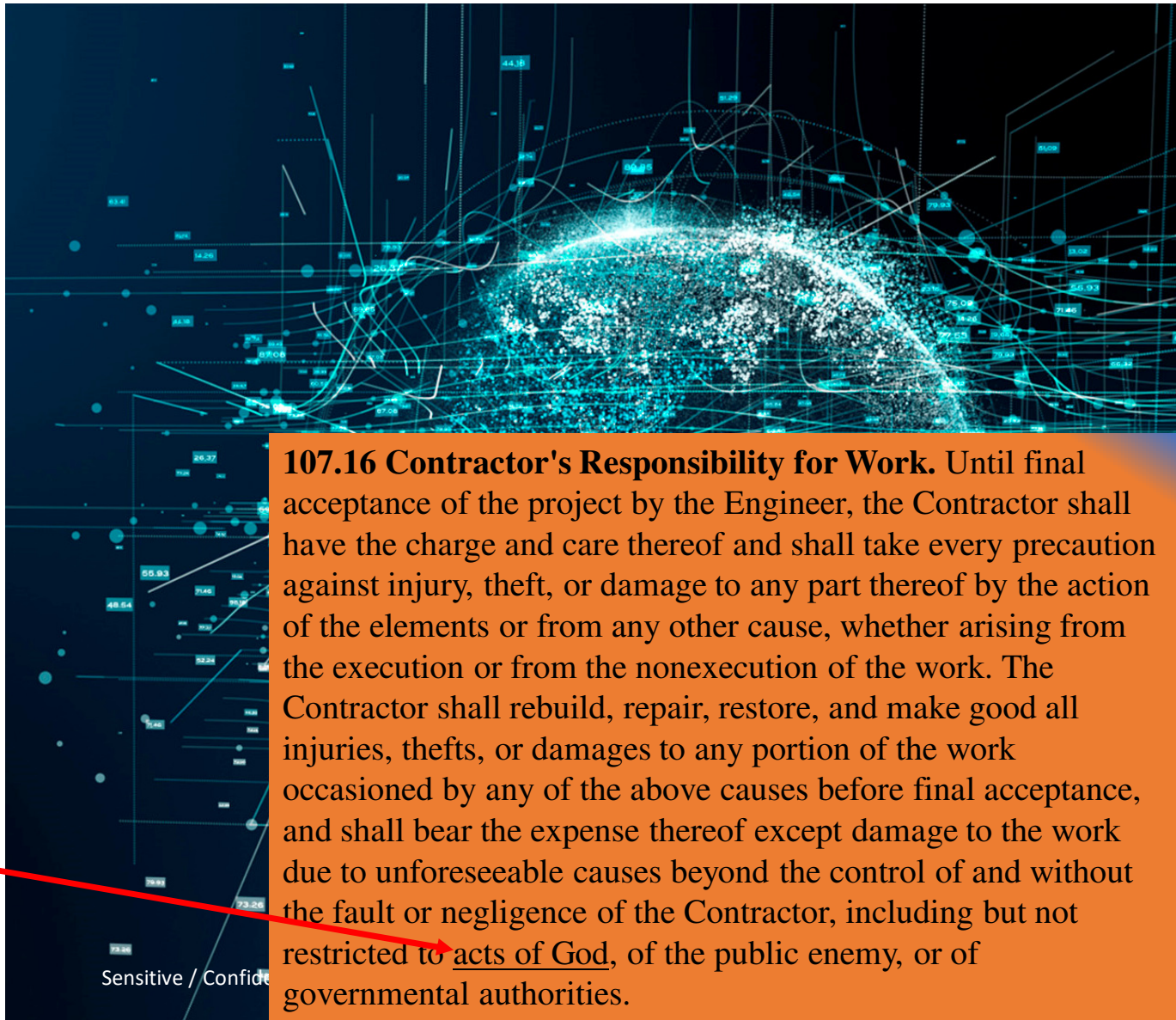
- ✓ ArDOT Plans provided defective and misleading information in the project plans and specifications resulting in 400 days of project suspension and increased costs to PMJV.
- ✓ ArDOT had provisions within the Specifications to suspend the project (SP. 108.05) yet owner rejected PMJV request to suspend.



- The contract is a working day schedule so time is of the essence. Project suspension would have allowed PMJV compensation for Mob and Demob and further allowed PMJV to pull idle equipment from the site so it could be taken off rent. The Idle Equipment on the project alone impacted the project by Millions of Dollars. PMJV relied on this Specification at Bid Time to reduce the risk of Idle Equipment during High Water Events.
- ✓ ArDOT again rejected claims without negotiation and PMJV was forced to Appeal to the Claims Commission.

CONCLUSION

- Engineering and testing of this cap has proven the Cap will perform as intended. There has been no data submitted that refutes this assertion.
- Removal of the Cap would be “Economic Waste” exposing Arkansas Taxpayers to additional costs ranging between \$12M and \$22M.
- A project that has already doubled its schedule due to High Water Events will most certainly triple in duration further delaying the traffic conversion from the existing “Structurally Deficient” structure to the new I-40 White River Bridge.
- “Acts of God” applies to this issue.
- Questions.....



107.16 Contractor's Responsibility for Work. Until final acceptance of the project by the Engineer, the Contractor shall have the charge and care thereof and shall take every precaution against injury, theft, or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries, thefts, or damages to any portion of the work occasioned by any of the above causes before final acceptance, and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, of the public enemy, or of governmental authorities.

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