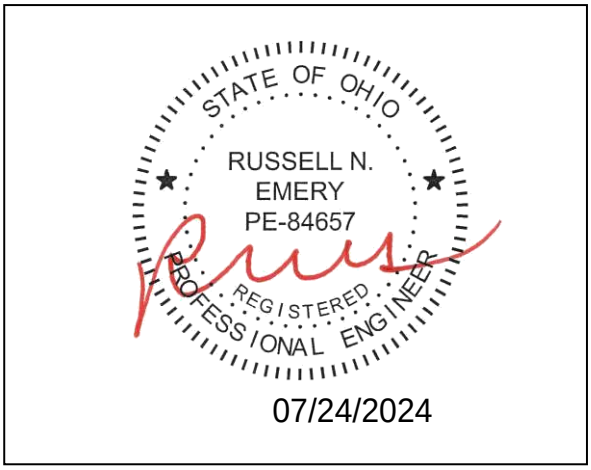
STRUCTURAL CALCULATIONS
for
1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES

at
YELLOW SPRINGS, OH

for
GLEN HELEN ASSOCIATION



BY: **RUSSEL N. EMERY, P.E.**
PROJECT ENGINEER

PROJECT #: **U6044.0002.241**

DATE: **July 22, 2024**

DESIGNED BY MBT; CHECKED BY ESS

NOTE:
The calculations presented in this package are intended for a single use at the location indicated above, for the client listed above. These calculations shall not be reproduced, reused, "card filed", sold to a third party, or altered in any way without the written authorization of Vector Structural Engineering, LLC and Glen Helen Association.

JOB NO.: U6044.0002.241

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES

Design Criteria:

Code: Structural design is based on the AASHTO LRFD Guide Specification for Design of Pedestrian Bridges (2009) and AISC Manual of Steel Construction, 13th Ed..

Wind: Wind loading based upon AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals.

Design Wind Pressure: 35 psf on 85 MPH (3-Second Gust)

Seismic: Mapped spectral response accelerations: S_S = 0.173g S_1 = 0.087g
Site class: D
Spectral response coefficients: S_{DS} = 0.185g S_{D1} = 0.139g
Seismic design category: C
Basic seismic-force-resisting-system: Pedestrian Bridges
Seismic base shear, V = 0.3 k
Seismic response coefficient, Cs = 0.102
Response modification factor, R = 2
Analysis procedure: Equivalent lateral force

Gravity Loading: Pedestrian Load: 90 psf, non-reducible, applied to deck area

Vehicle Load: None

JOB NO.: U6044.0002.241

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES

General Notes:

1 The contractor shall verify dimensions, conditions and elevations before starting work. The engineer shall be notified immediately if any discrepancies are found.
2 The typical notes and details shall apply in all cases unless specifically detailed elsewhere. Where no detail is shown, the construction shall be as shown for other similar work and as required by the building code.
3 These calculations are limited to the structural members shown in these calculations only. The connection of the members shown in these calculations to the existing structure shall be by others.
4 The contractor shall be responsible for compliance with local construction safety orders. Approval of shop drawings by the architect or structural engineer shall not be construed as accepting this responsibility.
5 All structural framing members shall be adequately shored and braced during erection and until full lateral and vertical support is provided by adjoining members.

Structural Aluminum:

1 Aluminum design and fabrication according to the Aluminum Design Manual (ADM), latest edition.
2 All aluminum rectangular tube material (RT) to be 6061-T6, U.N.O.
3 All aluminum wide flange shape material to be 6061-T6, U.N.O.
4 All other structural aluminum shape & plate material shall be 6061-T6, U.N.O.
5 All bolts for aluminum connections shall be per ASTM F3125 GR. A325 U.N.O.
6 All bolted connections shall be tightened to the snug tight condition as defined in the ADM.
7 All welding shall be performed by certified welders in accordance with the latest edition of the American Welding Society (AWS) D1.2, latest edition
8 All weld design and fabrication shall be according to AWS D1.2, latest edition
9 All welding shall utilize 4043 filler metal, U.N.O.
10 Welding shall be allowed where detailed on the drawings but the aluminum shall not be powder-coated or undergo any other process involving elevated temperatures without prior approval.
11 Aluminum shall be separated from other metals, wood, fiberboard, concrete, masonry, or other porous materials by a nonporous isolator compatible with the aluminum and the dissimilar material per the requirements of the

Foundation / Concrete:

1 All concrete mixing, placement, forming, and reinforcing installation shall be performed in accordance with the requirements of “Building Code Requirements for Reinforced Concrete”, ACI 318, latest edition. Foundation installation shall be in accordance with the requirements of "Standard Specifications for the Construction of Drilled Piers", ACI 336, latest edition
2 All concrete shall have a minimum compressive strength of 4000 psi at 28 days.
3 Cement for all concrete shall be Type I or II with a minimum of 6% entrained air. Maximum aggregate size shall be ¾".
4 Reinforcing steel shall be per ASTM A615 Gr. 60, U.N.O.
5 Foundation design is based on presumptive soil parameters. Vector Structural Engineering strongly recommends independent soils testing be performed by a licensed geotechnical engineer to verify soil bearing capacities, slope stability, and any other related soil parameters, as required.

JOB NO.: U6044.0002.241

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES

Bridge Loading

Truss Span (ft)	34	
Truss Deck Width (ft)	4	
Dead Load		
Deck Type	2x Treated Wood Decking	
Deck Weight (psf)	**7**	
Safety Railing Type	2x4	
Total Railing Weight	7.8	
Number of Rails	6	
Plank Ledger	None	
Plank Ledger Weight (plf)	0	
Plank Holdown	None	
Plank Holdown Weight (plf)	0	
Toe Plate	6"x1/4"	
Toe Plate Weight (plf)	5.1	
Hand Rail	2x6 Top Rail	
Hand Rail Weight (plf)	2	
Misc. Weight (plf)	0	
Total Load per foot (plf)	14.9	
Spacing between truss verticals (in)	48	
Railing Load Per Vert (lbs)	**60**	
Live Load		
Specified Pedestrian Load (psf)	90	
Total Loading Area (ft^2)	136	
Apply Live Load Reduction:	No	
Live Load Reduction Factor	1.00	
Applied Pedestrian Load (psf)	90	
Wind Uplift Load		
Wind uplift pressure applied to deck (psf):	20	Per Article 3.4
Tributary area to each floor beam (sq. ft):	16	Deck width x Beam Spacing
Uplift Load @ 1/4 point on Beam (lbs)	**320**	Trib. Area x wind pressure

JOB NO.: U6044.0002.241

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES

STREAM PRESSURE ON BRIDGE

(Per AASHTO Article 3.7.3.1)

Stream Pressure: $$p = \frac{C_D V^2}{1{,}000}$$

Note: The level of innundation is as determined by the civil engineer. It is assumed that there will be debris against the bridge, therefore, the stream preasure will be applied to the innundation level as if the bridge were enclosed.

Design Velocity of Water, *V (ft/s)* :	5
Drag Coefficient, C_D :	1.4
Design Stream Pressure, *p (ksf)* :	0.035

JOB NO.: U6044.0002.241

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES

Timber Bridge Deck Design

(Based upon NDS, latest edition)

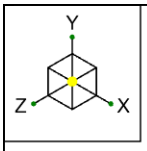
Plank Size:	2X6
Plank Grade:	DFL#1
Allow. Bending Stress (if "Other" plank grade) (psi):	
Allow. Shear Stress (if "Other" plank grade) (psi):	
Pedestrian Load, PL (psf):	90
Vehicle Wheel Load, VL (lbs):	0
Number of Spans:	2
Max. Span Length, l (ft):	2
Distance from Wheel Load to Nearest Stringer, d (ft):	1
User Input[1] PL Moment, $M_{PL,max}$ (lb-ft):	0
User Input[1] PL Shear, $V_{PL,max}$ (lbs):	0
User Input[1] VL Moment, $M_{VL,max}$ (lb-ft):	0
User Input[1] VL Shear, $V_{VL,max}$ (lbs):	0

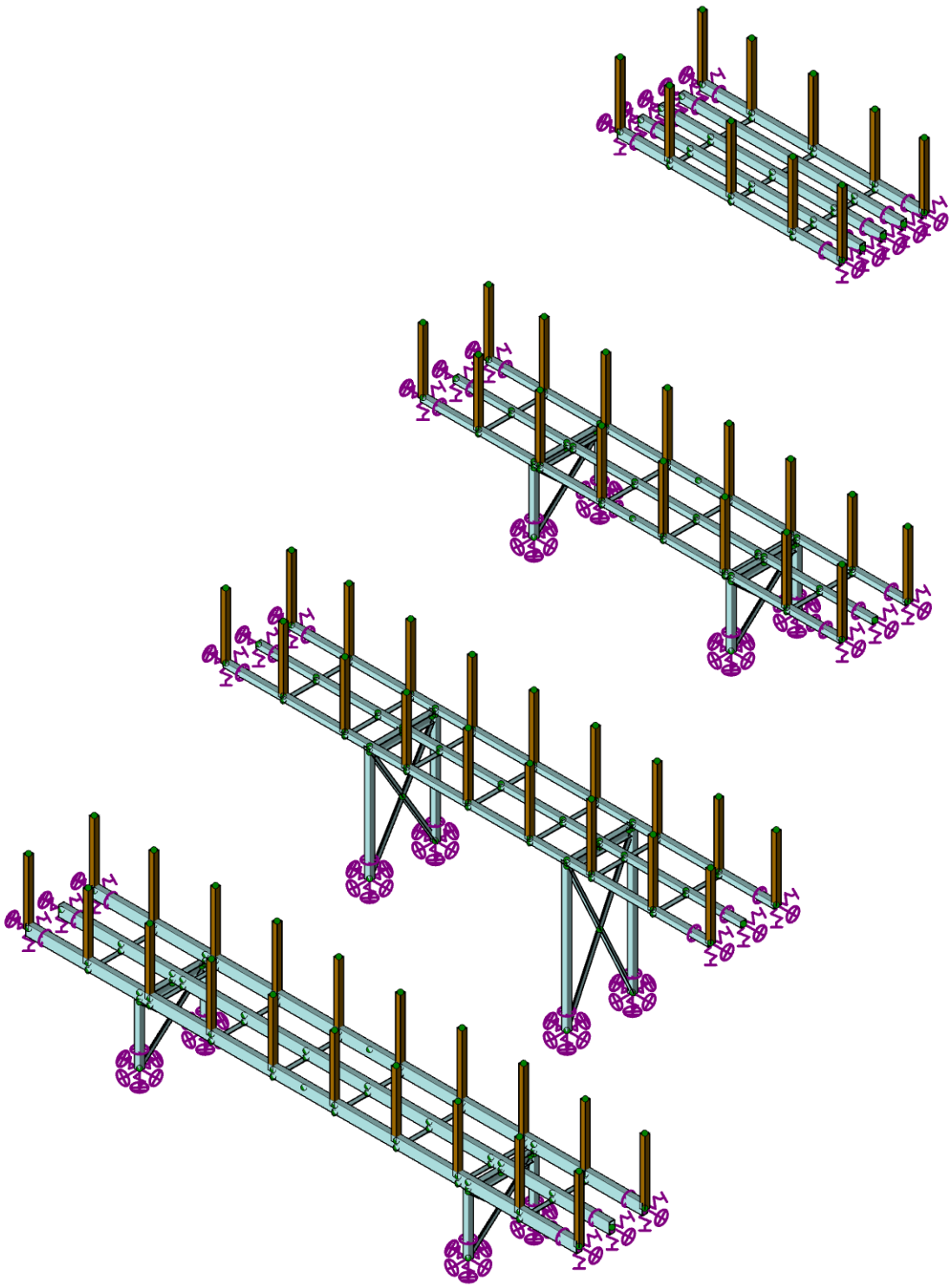
1. Enter '0' as user input va
you want the spreadsheet t
autocalc the maximum mon
and shears.

Sawn Lumber Adjustment Factors (Not applicable for "Other" plank grade)

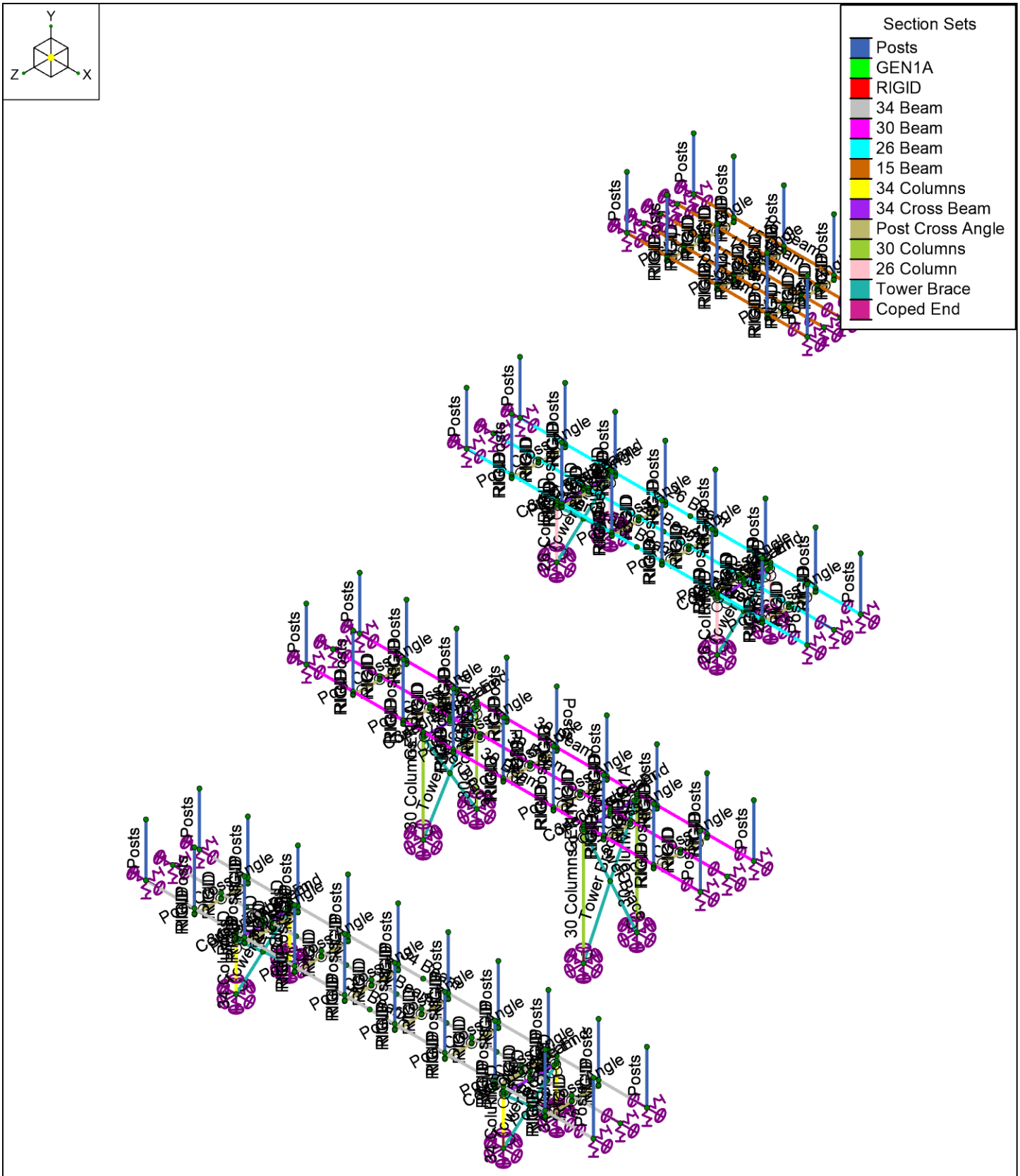
Pedestrian Load Duration Factor, C_D:	1.25
Vehicle Load Duration Factor, C_D:	2.00
Wet Service Factor (for bending), C_M:	0.85
Wet Service Factor (for shear), C_M:	0.97
Temperature Factor, C_t:	1.00
Size Factor, C_F:	1.30
Flat Use Factor, C_{fu}:	1.15
Incising Factor, C_i:	1.00
Repetitive Member Factor, C_r:	1.15
Allow. Bending Stress, F_b (psi):	1000
Adjusted Allow. Bending Stress, Ped. Load, F'_b (psi):	1827
Adjusted Allow. Bending Stress, Veh. Load, F'_b (psi):	2923
Allow. Shear Stress, F_v (psi):	180
Adjusted Allow. Shear Stress, Ped. Load, F'_v (psi):	218
Adjusted Allow. Shear Stress, Veh. Load, F'_v (psi):	349

Max. Plank Ped. Moment, $M_{PL,max}$ (lb-ft):	21	
Max. Plank Ped. Bending Stress, $f_{b,PL}$ (psi):	120	**Okay**
Max. Plank Ped. Shear, $V_{PL,max}$ (lbs):	52	
Max. Plank Ped. Shear Stress, $f_{v,PL}$ (psi):	9	**Okay**
Max. Plank Veh. Moment, $M_{VL,max}$ (lb-ft):	0	
Max. Plank Veh. Bending Stress, $f_{b,VL}$ (psi):	0	**Okay**
Max. Plank Veh. Shear, $V_{VL,max}$ (lbs):	0	
Max. Plank Veh. Shear Stress, $f_{v,VL}$ (psi):	0	**Okay**

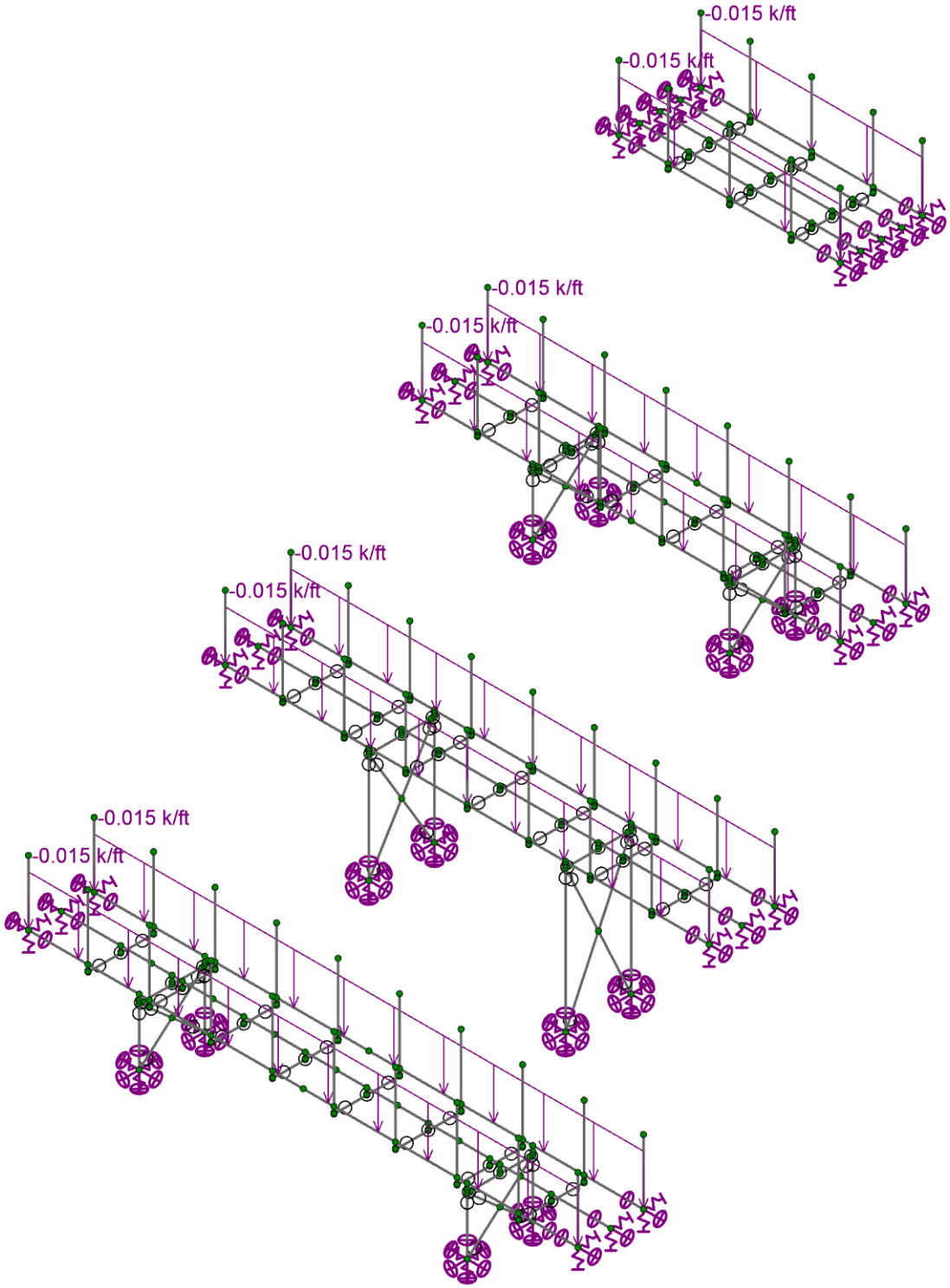




RISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	1
	MBT		Jul 22, 2024 at 04:32 PM
	U6044.0002.241		Glen Helen Bridges.r3d

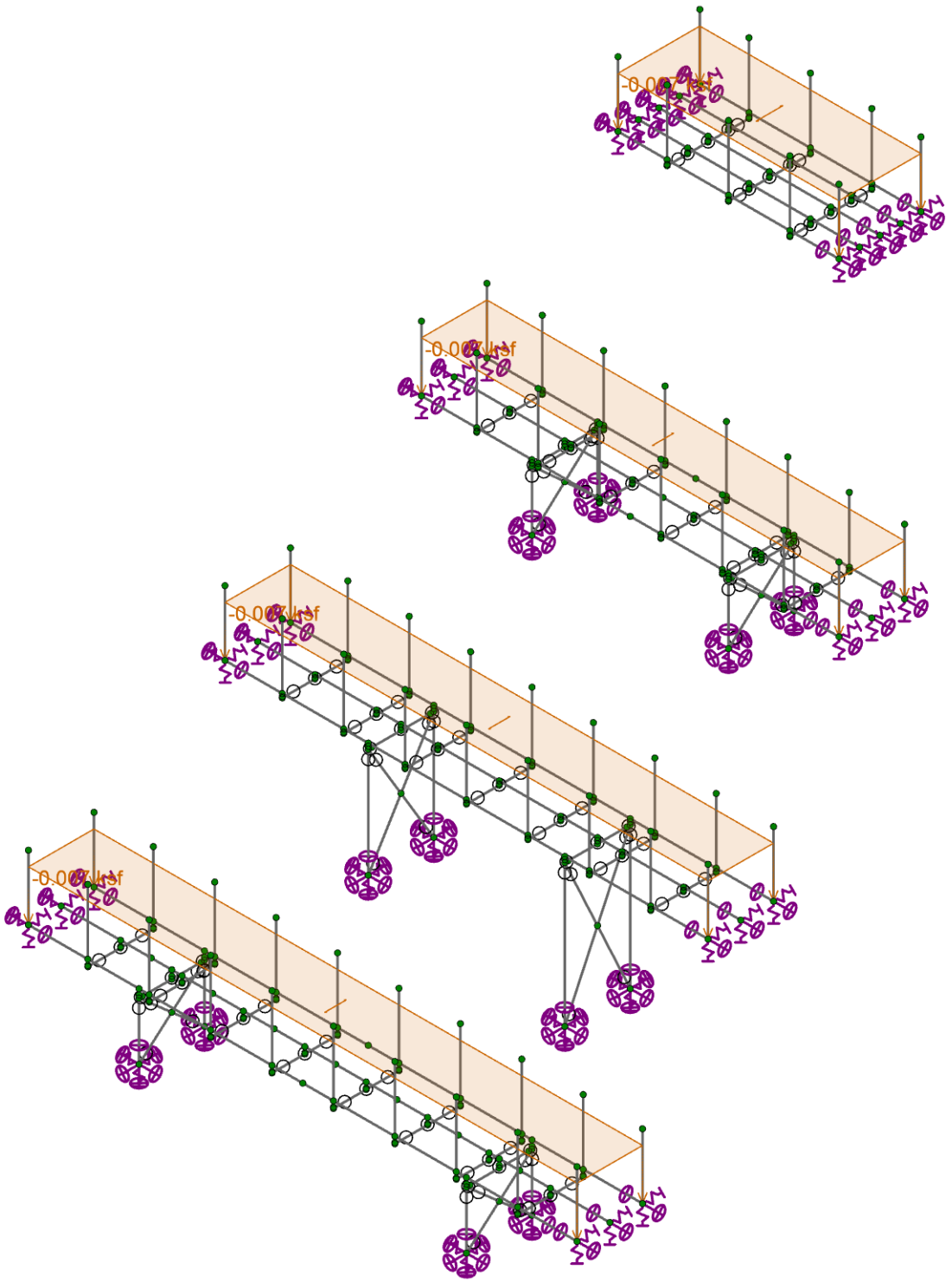


IRISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	2
	MBT		Jul 22, 2024 at 04:33 PM
	U6044.0002.241		Glen Helen Bridges.r3d



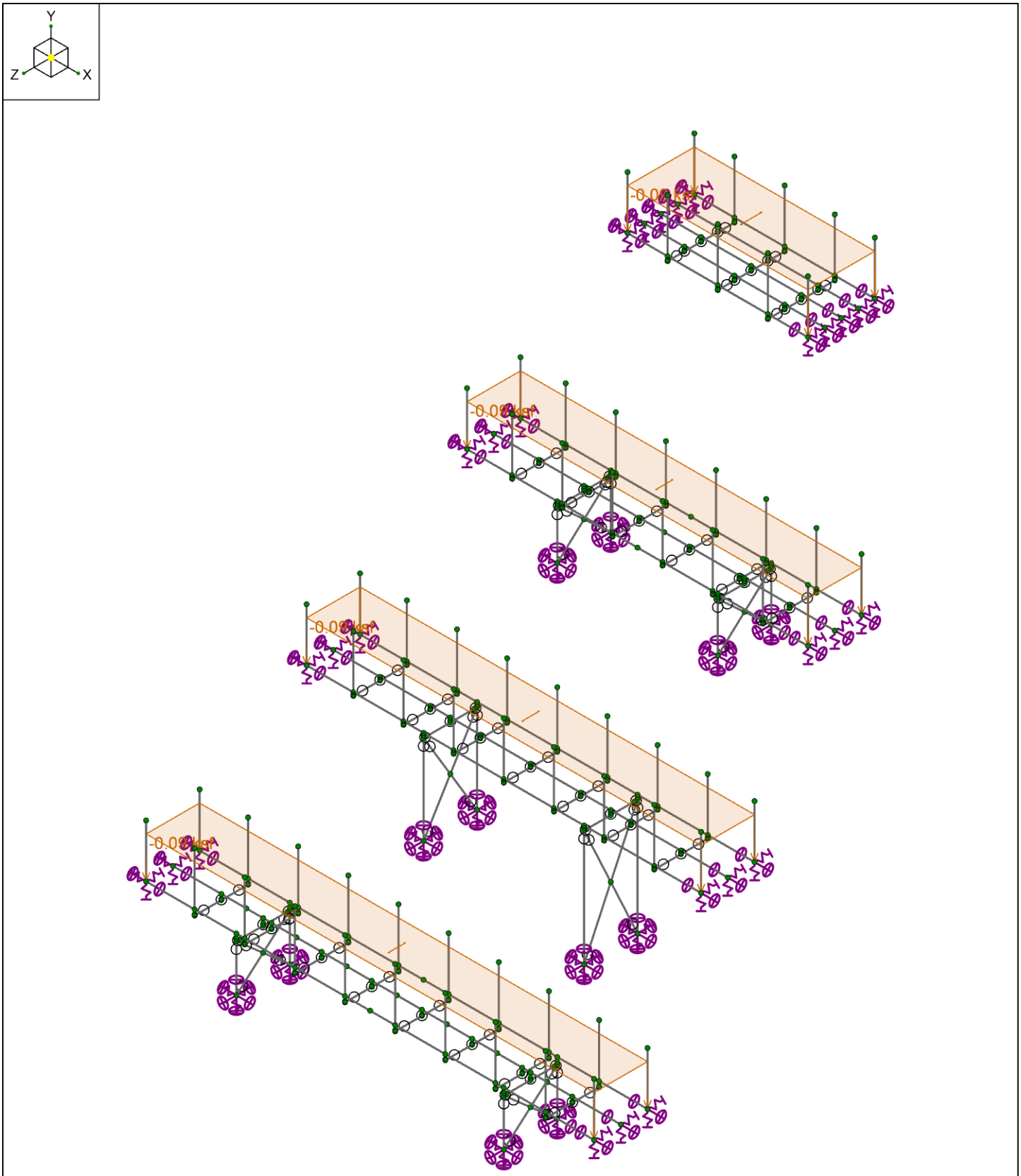
Loads: BLC 1, DC (DL of structural components)

IRISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	3
	MBT		Jul 22, 2024 at 04:34 PM
	U6044.0002.241		Glen Helen Bridges.r3d



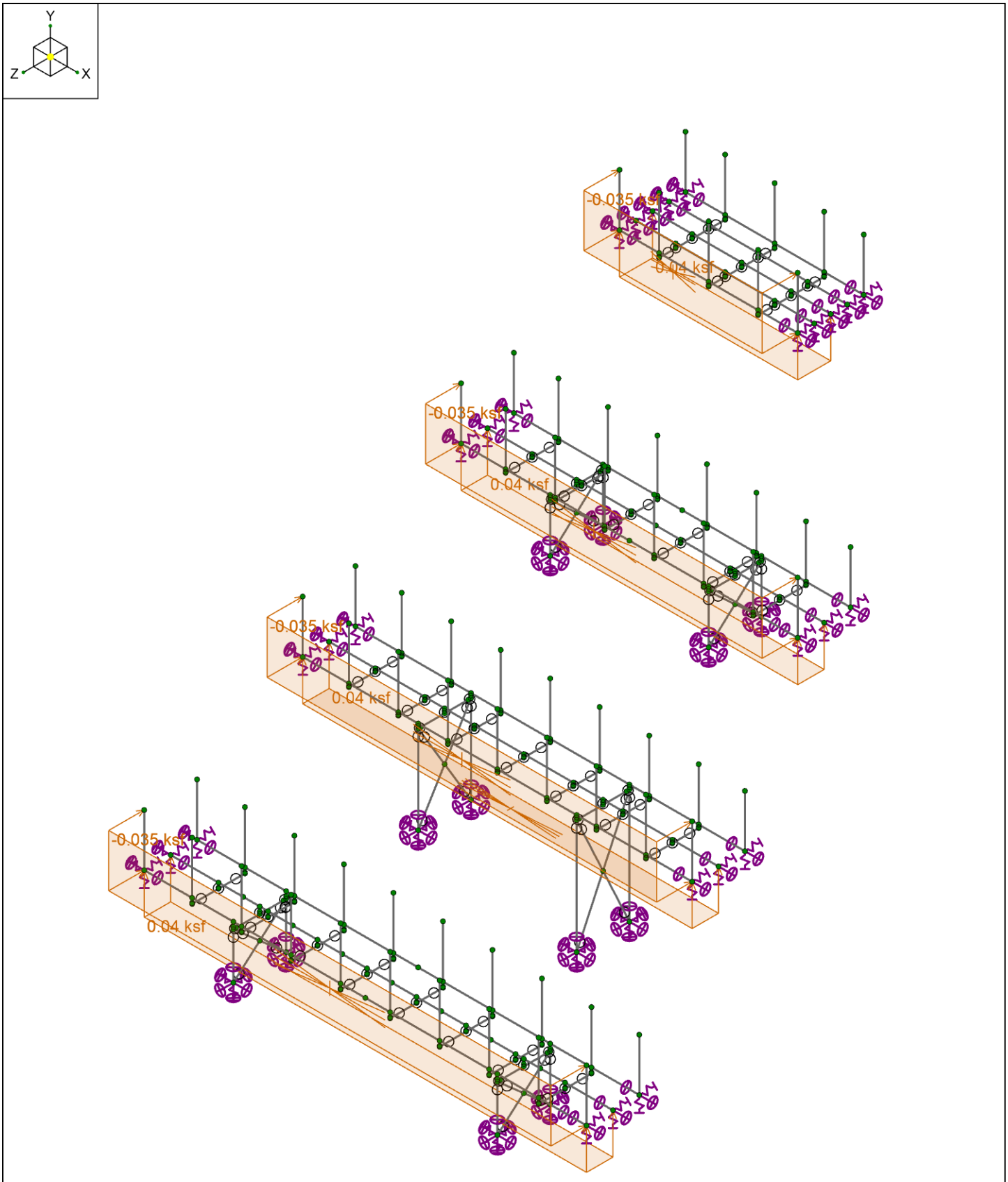
Loads: BLC 2, DL of Post-Installed Deck

IRISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	4
	MBT		Jul 22, 2024 at 04:36 PM
	U6044.0002.241		Glen Helen Bridges.r3d



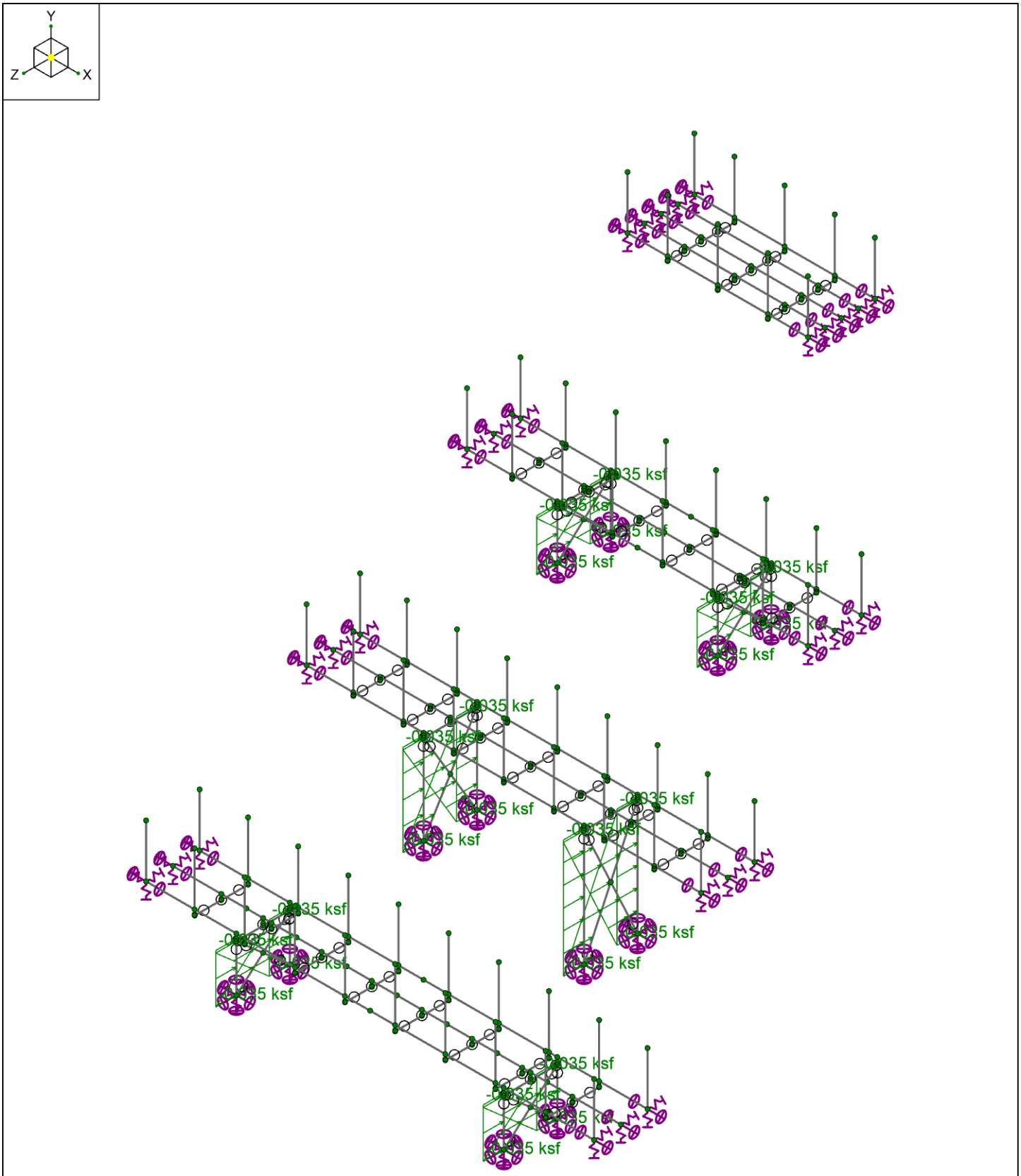
Loads: BLC 4, PL (Pedestrian live load)

IRISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	5
	MBT		Jul 22, 2024 at 04:37 PM
	U6044.0002.241		Glen Helen Bridges.r3d



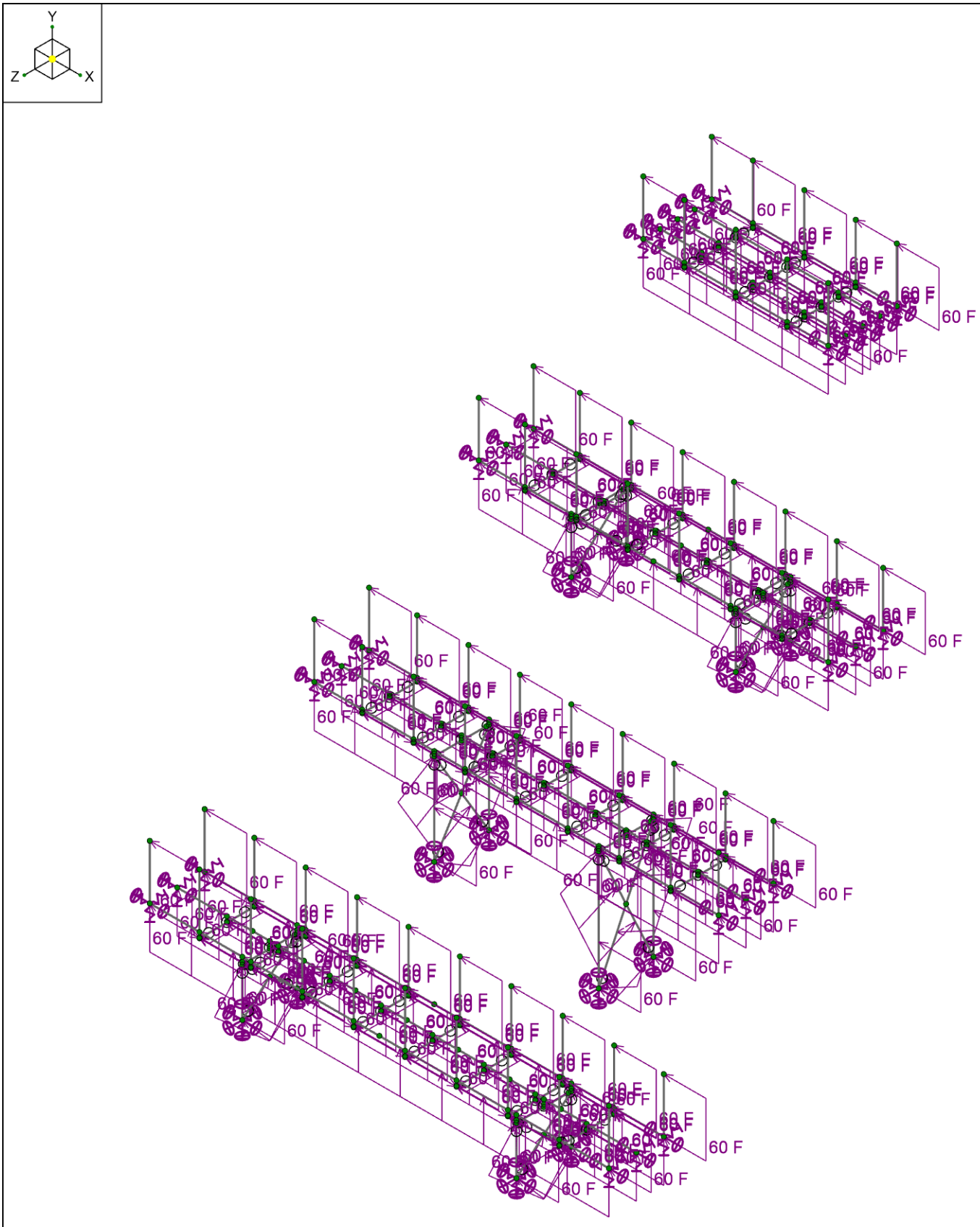
Loads: BLC 5, WS (Wind load on structure)

IRISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	6
	MBT		Jul 22, 2024 at 04:37 PM
	U6044.0002.241		Glen Helen Bridges.r3d



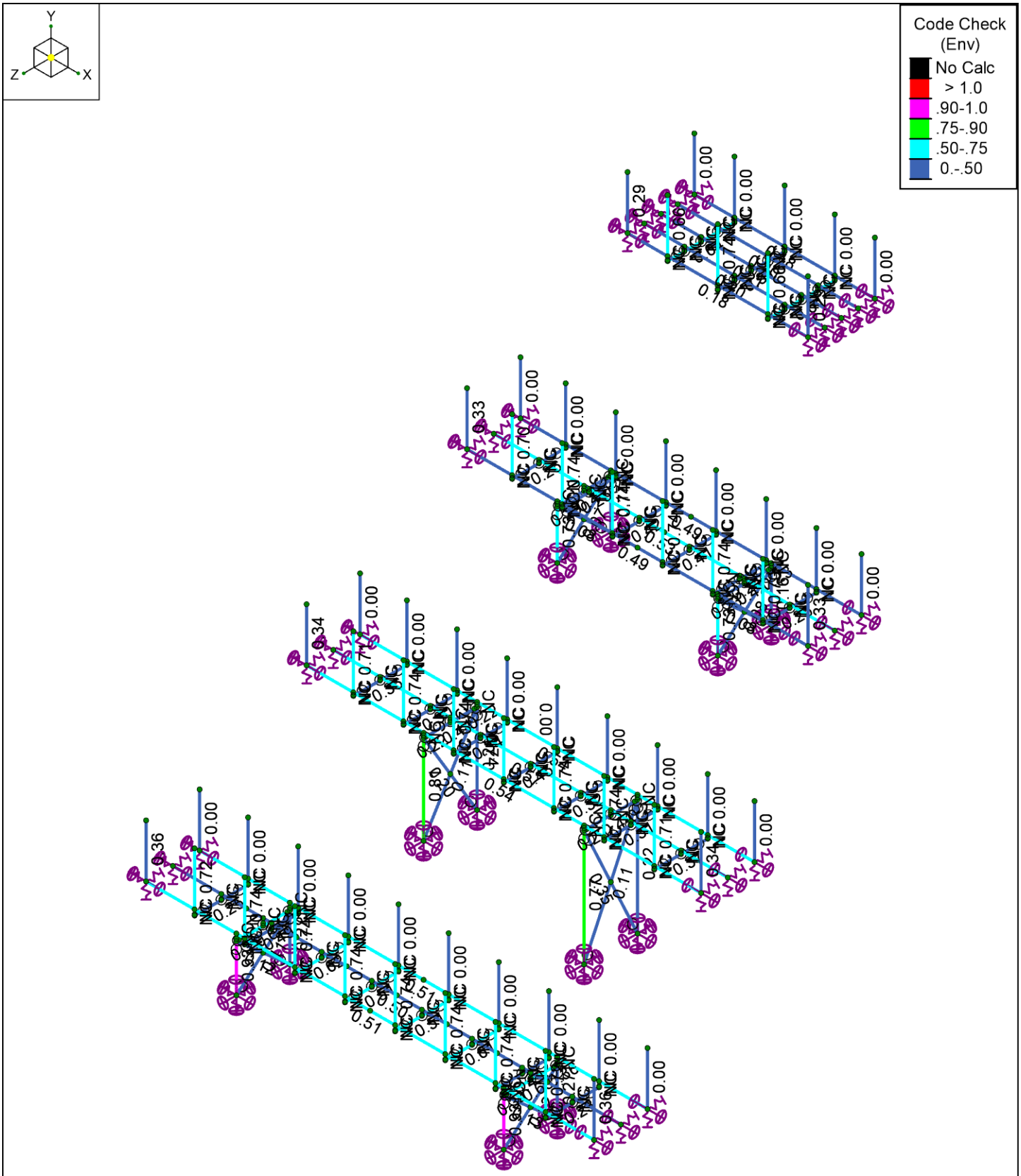
Loads: BLC 8, Stream Load

RISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	7
	MBT		Jul 22, 2024 at 04:38 PM
	U6044.0002.241		Glen Helen Bridges.r3d



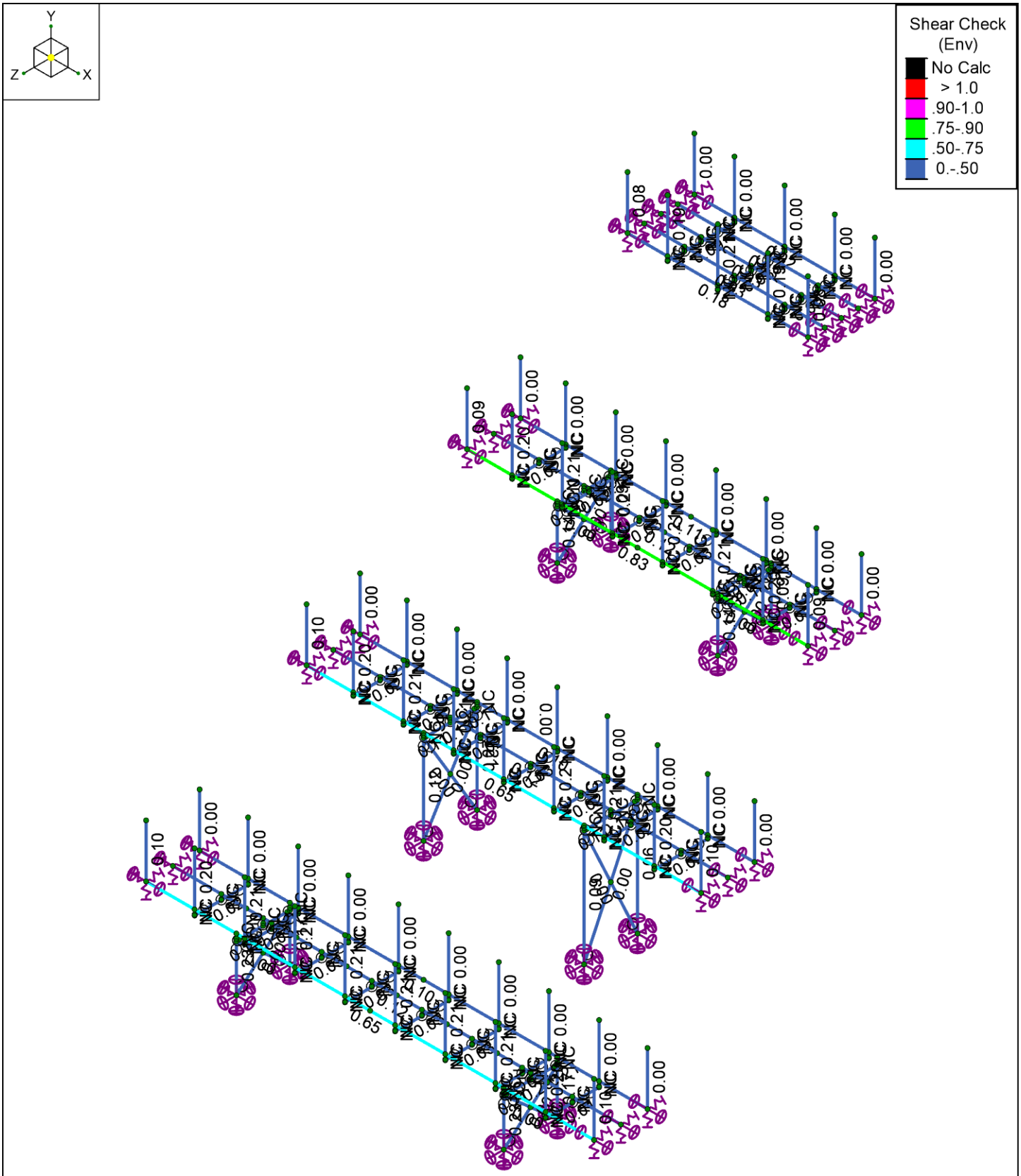
Loads: BLC 9, TG (Temperature gradient load)

IRISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	8
	MBT		Jul 22, 2024 at 04:38 PM
	U6044.0002.241		Glen Helen Bridges.r3d



Member Code Checks Displayed (Enveloped)

IRISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	9
	MBT		Jul 22, 2024 at 04:42 PM
	U6044.0002.241		Glen Helen Bridges.r3d



Member Shear Checks Displayed (Enveloped)

RISA A NEMETSCHEK COMPANY	VSE	33B Aluminum Pedestrian Bridge	10
	MBT		Jul 22, 2024 at 04:43 PM
	U6044.0002.241		Glen Helen Bridges.r3d

Model Settings

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes
Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	No
Maximum Number of Iterations	3
Single	No
Multiple (Optimum)	Yes
Maximum	No

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes
Default Global Plane for z-axis	XZ
Plate Local Axis Orientation	Nodal

Hot Rolled Steel	AISC 15th (360-16): LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	None
Cold Formed Steel	None
Stiffness Adjustment	Yes (Iterative)
Wood	AWC NDS-18 / SDPWS-21 LRFD
Temperature	< 100F
Concrete	ACI 318-19
Masonry	None
Aluminum	AA ADM1-20: LRFD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	None
Stiffness Adjustment	Yes (Iterative)

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	Yes
List forces which were ignored for design in the Detail Report	Yes

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No
Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Code	UBC 1997
Occupancy Cat	4
Seismic Zone	3

Model Settings (Continued)

Base Elevation (ft)	-0.083333
Include the weight of the structure in base shear calcs	No
C_a	0.36
C_v	0.54
T Z (sec)	
T X (sec)	
C_tZ	0.035
C_tX	0.035
R Z	8.5
R X	8.5
Ω_0Z	1
Ω_0X	1
ρ Z	1
ρ X	1

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N6		S160	S80	Reaction		
2	N4		S160	S80	Reaction		
3	N1	S80	S160	S80	Reaction		
4	N3	S80	S160	S80	Reaction		
5	N27	S80	S160	S80	Reaction		
6	N28	S80	S160	S80	Reaction		
7	N29		S160	S80	Reaction		
8	N30		S160	S80	Reaction		
9	N36	S80	S160	S80	Reaction		
10	N37		S160	S80	Reaction		
11	N48	S80	S160	S80	Reaction		
12	N49	S80	S160	S80	Reaction		
13	N50		S160	S80	Reaction		
14	N51		S160	S80	Reaction		
15	N57	S80	S160	S80	Reaction		
16	N58		S160	S80	Reaction		
17	N69	S80	S160	S80	Reaction		
18	N70	S80	S160	S80	Reaction		
19	N71		S160	S80	Reaction		
20	N72		S160	S80	Reaction		
21	N73	S80	S160	S80	Reaction		
22	N74		S160	S80	Reaction		
23	N78	S80	S160	S80	Reaction		
24	N79		S160	S80	Reaction		
25	N86	S80	S160	S80	Reaction		
26	N96		S160	S80	Reaction		
27	N63	S80	S160	S80	Reaction	Reaction	Reaction
28	N67	S80	S160	S80	Reaction	Reaction	Reaction
29	N91	S80	S160	S80	Reaction	Reaction	Reaction
30	N90	S80	S160	S80	Reaction	Reaction	Reaction
31	N177	S80	S160	S80	Reaction	Reaction	Reaction
32	N179	S80	S160	S80	Reaction	Reaction	Reaction
33	N187	S80	S160	S80	Reaction	Reaction	Reaction
34	N197	S80	S160	S80	Reaction	Reaction	Reaction
35	N235	S80	S160	S80	Reaction		
36	N236		S160	S80	Reaction		
37	N276	S80	S160	S80	Reaction	Reaction	Reaction
38	N321	S80	S160	S80	Reaction	Reaction	Reaction
39	N328	S80	S160	S80	Reaction	Reaction	Reaction
40	N332	S80	S160	S80	Reaction	Reaction	Reaction

Aluminum Properties

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

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	34 Beam	RT4X8X0.25	Beam	Rectangular Tubes	6061-T6 W	Typical	5.75	15.9	47.6	36.7
2	30 Beam	RT4X4X0.250	Beam	Rectangular Tubes	6061-T6 W	Typical	3.75	8.83	8.83	13.2
3	26 Beam	RT4X4X0.250	Beam	Rectangular Tubes	6061-T6 W	Typical	3.75	8.83	8.83	13.2
4	20 Beam	RT4X8X0.25	Beam	Rectangular Tubes	6061-T6 W	Typical	5.75	15.9	47.6	36.7
5	15 Beam	RT4X6X0.25	Beam	Rectangular Tubes	6061-T6	Typical	4.75	12.3	23.5	24.5
6	34 Columns	RT4X4X0.250	Column	Rectangular Tubes	6061-T6 W	Typical	3.75	8.83	8.83	13.2
7	34 Cross Beam	AAI6X4.03	Beam	None	6061-T6 W	Typical	3.43	3.1	22	0.089
8	Post Cross Angle	L3X3X0.25	Beam	None	6061-T6 W	Typical	1.43	1.19	1.19	0.028
9	30 Columns	RT4X4X0.250	Column	Rectangular Tubes	6061-T6 W	Typical	3.75	8.83	8.83	13.2
10	30 Cross Beam	RT4X4X0.250	Beam	Rectangular Tubes	6061-T6 W	Typical	3.75	8.83	8.83	13.2
11	26 Column	RT4X4X0.250	Column	Rectangular Tubes	6061-T6 W	Typical	3.75	8.83	8.83	13.2
12	26 Cross Beam	RT4X4X0.250	Beam	Rectangular Tubes	6061-T6 W	Typical	3.75	8.83	8.83	13.2
13	Tower Brace	L3X3X0.25	Beam	Rectangular Tubes	6061-T6	Typical	1.43	1.19	1.19	0.028
14	Coped End	ALPL4.5X0.19	Beam	None	6061-T6	Typical	0.855	0.003	1.443	0.01

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N1	N4		34 Beam	Beam	Rectangular Tubes	6061-T6 W	Typical
2	M3	N3	N6		34 Beam	Beam	Rectangular Tubes	6061-T6 W	Typical
3	M10	N27	N29		30 Beam	Beam	Rectangular Tubes	6061-T6 W	Typical
4	M11	N28	N30		30 Beam	Beam	Rectangular Tubes	6061-T6 W	Typical
5	M13	N36	N37		30 Beam	Beam	Rectangular Tubes	6061-T6 W	Typical
6	M17	N48	N50		26 Beam	Beam	Rectangular Tubes	6061-T6 W	Typical
7	M18	N49	N51		26 Beam	Beam	Rectangular Tubes	6061-T6 W	Typical
8	M20	N57	N58		26 Beam	Beam	Rectangular Tubes	6061-T6 W	Typical
9	M24	N69	N71		15 Beam	Beam	Rectangular Tubes	6061-T6	Typical
10	M25	N70	N72		15 Beam	Beam	Rectangular Tubes	6061-T6	Typical
11	M26	N73	N74		15 Beam	Beam	Rectangular Tubes	6061-T6	Typical
12	M27	N78	N79		15 Beam	Beam	Rectangular Tubes	6061-T6	Typical
13	M16	N86	N96		34 Beam	Beam	Rectangular Tubes	6061-T6 W	Typical
14	M14	N67	N93		34 Columns	Column	Rectangular Tubes	6061-T6 W	Typical
15	M15	N63	N92		34 Columns	Column	Rectangular Tubes	6061-T6 W	Typical
16	M19	N91	N95		34 Columns	Column	Rectangular Tubes	6061-T6 W	Typical
17	M21	N90	N94		34 Columns	Column	Rectangular Tubes	6061-T6 W	Typical
18	M22	N104	N466		Coped End	Beam	None	6061-T6	Typical
19	M23	N106	N463		Coped End	Beam	None	6061-T6	Typical
20	M28	N95	N61		RIGID	None	None	RIGID	Typical
21	M29	N94	N60		RIGID	None	None	RIGID	Typical
22	M30	N102	N99		RIGID	None	None	RIGID	Typical
23	M31	N102	N108		RIGID	None	None	RIGID	Typical
24	M32	N93	N8		RIGID	None	None	RIGID	Typical
25	M33	N101	N98		RIGID	None	None	RIGID	Typical
26	M34	N92	N7		RIGID	None	None	RIGID	Typical
27	M35	N101	N107		RIGID	None	None	RIGID	Typical
28	M36	N3	N110		Posts	Beam	Rectangular	DF/SPine	Typical
29	M37	N1	N109		Posts	Beam	Rectangular	DF/SPine	Typical
30	M38	N114	N112		Posts	Beam	Rectangular	DF/SPine	Typical
31	M39	N113	N111		Posts	Beam	Rectangular	DF/SPine	Typical
32	M40	N6	N144		Posts	Beam	Rectangular	DF/SPine	Typical
33	M41	N4	N143		Posts	Beam	Rectangular	DF/SPine	Typical
34	M42	N118	N116		Posts	Beam	Rectangular	DF/SPine	Typical
35	M43	N117	N115		Posts	Beam	Rectangular	DF/SPine	Typical
36	M44	N122	N120		Posts	Beam	Rectangular	DF/SPine	Typical
37	M45	N121	N119		Posts	Beam	Rectangular	DF/SPine	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
38	M46	N126	N124		Posts	Beam	Rectangular	DF/SPine	Typical
39	M47	N125	N123		Posts	Beam	Rectangular	DF/SPine	Typical
40	M48	N130	N128		Posts	Beam	Rectangular	DF/SPine	Typical
41	M49	N129	N127		Posts	Beam	Rectangular	DF/SPine	Typical
42	M50	N134	N132		Posts	Beam	Rectangular	DF/SPine	Typical
43	M51	N133	N131		Posts	Beam	Rectangular	DF/SPine	Typical
44	M52	N138	N136		Posts	Beam	Rectangular	DF/SPine	Typical
45	M53	N137	N135		Posts	Beam	Rectangular	DF/SPine	Typical
46	M54	N142	N140		Posts	Beam	Rectangular	DF/SPine	Typical
47	M55	N141	N139		Posts	Beam	Rectangular	DF/SPine	Typical
48	M64	N161	N145		RIGID	None	None	RIGID	Typical
49	M65	N145	N113		RIGID	None	None	RIGID	Typical
50	M66	N162	N146		RIGID	None	None	RIGID	Typical
51	M67	N146	N114		RIGID	None	None	RIGID	Typical
52	M68	N163	N147		RIGID	None	None	RIGID	Typical
53	M69	N147	N117		RIGID	None	None	RIGID	Typical
54	M70	N164	N148		RIGID	None	None	RIGID	Typical
55	M71	N148	N118		RIGID	None	None	RIGID	Typical
56	M72	N165	N149		RIGID	None	None	RIGID	Typical
57	M73	N149	N121		RIGID	None	None	RIGID	Typical
58	M74	N166	N150		RIGID	None	None	RIGID	Typical
59	M75	N150	N122		RIGID	None	None	RIGID	Typical
60	M76	N167	N151		RIGID	None	None	RIGID	Typical
61	M77	N151	N125		RIGID	None	None	RIGID	Typical
62	M78	N168	N152		RIGID	None	None	RIGID	Typical
63	M79	N152	N126		RIGID	None	None	RIGID	Typical
64	M80	N169	N153		RIGID	None	None	RIGID	Typical
65	M81	N153	N129		RIGID	None	None	RIGID	Typical
66	M82	N170	N154		RIGID	None	None	RIGID	Typical
67	M83	N154	N130		RIGID	None	None	RIGID	Typical
68	M84	N171	N155		RIGID	None	None	RIGID	Typical
69	M85	N155	N133		RIGID	None	None	RIGID	Typical
70	M86	N172	N156		RIGID	None	None	RIGID	Typical
71	M87	N156	N134		RIGID	None	None	RIGID	Typical
72	M88	N173	N157		RIGID	None	None	RIGID	Typical
73	M89	N157	N137		RIGID	None	None	RIGID	Typical
74	M90	N174	N158		RIGID	None	None	RIGID	Typical
75	M91	N158	N138		RIGID	None	None	RIGID	Typical
76	M92	N175	N159		RIGID	None	None	RIGID	Typical
77	M93	N159	N141		RIGID	None	None	RIGID	Typical
78	M94	N176	N160		RIGID	None	None	RIGID	Typical
79	M95	N160	N142		RIGID	None	None	RIGID	Typical
80	M96	N179	N201		30 Columns	Column	Rectangular Tubes	6061-T6 W	Typical
81	M97	N177	N200		30 Columns	Column	Rectangular Tubes	6061-T6 W	Typical
82	M108	N197	N198		30 Columns	Column	Rectangular Tubes	6061-T6 W	Typical
83	M109	N187	N195		30 Columns	Column	Rectangular Tubes	6061-T6 W	Typical
84	M110	N204	N464		Coped End	Beam	None	6061-T6	Typical
85	M111	N207	N465		Coped End	Beam	None	6061-T6	Typical
86	M112	N28	N209		Posts	Beam	Rectangular	DF/SPine	Typical
87	M113	N27	N210		Posts	Beam	Rectangular	DF/SPine	Typical
88	M114	N162	N161	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
89	M115	N164	N163	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
90	M116	N166	N165	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
91	M117	N168	N167	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
92	M118	N170	N169	90	Post Cross Angle	Beam	None	6061-T6 W	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
93	M119	N172	N171	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
94	M120	N174	N173	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
95	M121	N176	N175	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
96	M122	N212	N213		RIGID	None	None	RIGID	Typical
97	M123	N214	N212		RIGID	None	None	RIGID	Typical
98	M124	N215	N216		RIGID	None	None	RIGID	Typical
99	M125	N217	N215		RIGID	None	None	RIGID	Typical
100	M126	N218	N211		RIGID	None	None	RIGID	Typical
101	M127	N219	N218		RIGID	None	None	RIGID	Typical
102	M128	N220	N221		RIGID	None	None	RIGID	Typical
103	M129	N222	N220		RIGID	None	None	RIGID	Typical
104	M130	N223	N224		RIGID	None	None	RIGID	Typical
105	M131	N225	N223		RIGID	None	None	RIGID	Typical
106	M132	N226	N227		RIGID	None	None	RIGID	Typical
107	M133	N228	N226		RIGID	None	None	RIGID	Typical
108	M134	N229	N230		RIGID	None	None	RIGID	Typical
109	M135	N231	N229		RIGID	None	None	RIGID	Typical
110	M136	N232	N233		RIGID	None	None	RIGID	Typical
111	M137	N234	N232		RIGID	None	None	RIGID	Typical
112	M138	N235	N236		15 Beam	Beam	Rectangular Tubes	6061-T6	Typical
113	M139	N244	N242		RIGID	None	None	RIGID	Typical
114	M140	N245	N238		RIGID	None	None	RIGID	Typical
115	M141	N246	N244		RIGID	None	None	RIGID	Typical
116	M142	N239	N245		RIGID	None	None	RIGID	Typical
117	M143	N247	N243		RIGID	None	None	RIGID	Typical
118	M144	N248	N247		RIGID	None	None	RIGID	Typical
119	M145	N238	N241		Posts	Beam	Rectangular	DF/SPine	Typical
120	M146	N242	N240		Posts	Beam	Rectangular	DF/SPine	Typical
121	M147	N239	N246	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
122	M148	N255	N253		RIGID	None	None	RIGID	Typical
123	M149	N256	N249		RIGID	None	None	RIGID	Typical
124	M150	N257	N255		RIGID	None	None	RIGID	Typical
125	M151	N250	N256		RIGID	None	None	RIGID	Typical
126	M152	N258	N254		RIGID	None	None	RIGID	Typical
127	M153	N259	N258		RIGID	None	None	RIGID	Typical
128	M154	N249	N252		Posts	Beam	Rectangular	DF/SPine	Typical
129	M155	N253	N251		Posts	Beam	Rectangular	DF/SPine	Typical
130	M156	N250	N257	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
131	M157	N266	N264		RIGID	None	None	RIGID	Typical
132	M158	N267	N260		RIGID	None	None	RIGID	Typical
133	M159	N268	N266		RIGID	None	None	RIGID	Typical
134	M160	N261	N267		RIGID	None	None	RIGID	Typical
135	M161	N269	N265		RIGID	None	None	RIGID	Typical
136	M162	N270	N269		RIGID	None	None	RIGID	Typical
137	M163	N260	N263		Posts	Beam	Rectangular	DF/SPine	Typical
138	M164	N264	N262		Posts	Beam	Rectangular	DF/SPine	Typical
139	M165	N261	N268	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
140	M166	N277	N83		RIGID	None	None	RIGID	Typical
141	M167	N278	N81		RIGID	None	None	RIGID	Typical
142	M168	N279	N277		RIGID	None	None	RIGID	Typical
143	M169	N272	N278		RIGID	None	None	RIGID	Typical
144	M170	N280	N82		RIGID	None	None	RIGID	Typical
145	M171	N281	N280		RIGID	None	None	RIGID	Typical
146	M172	N81	N274		Posts	Beam	Rectangular	DF/SPine	Typical
147	M173	N83	N273		Posts	Beam	Rectangular	DF/SPine	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
148	M174	N272	N279	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
149	M175	N288	N286		RIGID	None	None	RIGID	Typical
150	M176	N289	N282		RIGID	None	None	RIGID	Typical
151	M177	N290	N288		RIGID	None	None	RIGID	Typical
152	M178	N283	N289		RIGID	None	None	RIGID	Typical
153	M179	N291	N287		RIGID	None	None	RIGID	Typical
154	M180	N292	N291		RIGID	None	None	RIGID	Typical
155	M181	N282	N285		Posts	Beam	Rectangular	DF/SPine	Typical
156	M182	N286	N284		Posts	Beam	Rectangular	DF/SPine	Typical
157	M183	N283	N290	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
158	M184	N299	N297		RIGID	None	None	RIGID	Typical
159	M185	N300	N293		RIGID	None	None	RIGID	Typical
160	M186	N301	N299		RIGID	None	None	RIGID	Typical
161	M187	N294	N300		RIGID	None	None	RIGID	Typical
162	M188	N302	N298		RIGID	None	None	RIGID	Typical
163	M189	N303	N302		RIGID	None	None	RIGID	Typical
164	M190	N293	N296		Posts	Beam	Rectangular	DF/SPine	Typical
165	M191	N297	N295		Posts	Beam	Rectangular	DF/SPine	Typical
166	M192	N294	N301	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
167	M193	N310	N308		RIGID	None	None	RIGID	Typical
168	M194	N311	N304		RIGID	None	None	RIGID	Typical
169	M195	N312	N310		RIGID	None	None	RIGID	Typical
170	M196	N305	N311		RIGID	None	None	RIGID	Typical
171	M197	N313	N309		RIGID	None	None	RIGID	Typical
172	M198	N314	N313		RIGID	None	None	RIGID	Typical
173	M199	N304	N307		Posts	Beam	Rectangular	DF/SPine	Typical
174	M200	N308	N306		Posts	Beam	Rectangular	DF/SPine	Typical
175	M201	N305	N312	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
176	M202	N30	N315		Posts	Beam	Rectangular	DF/SPine	Typical
177	M203	N29	N316		Posts	Beam	Rectangular	DF/SPine	Typical
178	M204	N198	N34		GEN1A	Beam	None	gen_Conc3NW	Typical
179	M205	N38	N199		GEN1A	Beam	None	gen_Conc3NW	Typical
180	M206	N205	N199		GEN1A	Beam	None	gen_Conc3NW	Typical
181	M207	N195	N33		GEN1A	Beam	None	gen_Conc3NW	Typical
182	M208	N200	N62		GEN1A	Beam	None	gen_Conc3NW	Typical
183	M209	N202	N68		GEN1A	Beam	None	gen_Conc3NW	Typical
184	M210	N202	N208		GEN1A	Beam	None	gen_Conc3NW	Typical
185	M211	N201	N66		GEN1A	Beam	None	gen_Conc3NW	Typical
186	M212	N204	N187		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
187	M213	N203	N197		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
188	M214	N206	N179		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
189	M215	N207	N177		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
190	M216	N104	N63		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
191	M217	N103	N67		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
192	M218	N106	N90		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
193	M219	N105	N91		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
194	M220	N275	N85		RIGID	None	None	RIGID	Typical
195	M221	N323	N87		RIGID	None	None	RIGID	Typical
196	M222	N322	N84		RIGID	None	None	RIGID	Typical
197	M223	N323	N326		RIGID	None	None	RIGID	Typical
198	M224	N321	N275		26 Column	Column	Rectangular Tubes	6061-T6 W	Typical
199	M225	N276	N322		26 Column	Column	Rectangular Tubes	6061-T6 W	Typical
200	M226	N325	N467		Coped End	Beam	None	6061-T6	Typical
201	M227	N325	N276		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
202	M228	N324	N321		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
203	M229	N330	N88		RIGID	None	None	RIGID	Typical
204	M230	N331	N335		RIGID	None	None	RIGID	Typical
205	M231	N334	N468		Coped End	Beam	None	6061-T6	Typical
206	M232	N332	N329		26 Column	Column	Rectangular Tubes	6061-T6 W	Typical
207	M233	N328	N330		26 Column	Column	Rectangular Tubes	6061-T6 W	Typical
208	M234	N333	N332		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
209	M235	N334	N328		Tower Brace	Beam	Rectangular Tubes	6061-T6	Typical
210	M236	N331	N97		RIGID	None	None	RIGID	Typical
211	M237	N329	N89		RIGID	None	None	RIGID	Typical
212	M238	N49	N337		Posts	Beam	Rectangular	DF/SPine	Typical
213	M239	N48	N338		Posts	Beam	Rectangular	DF/SPine	Typical
214	M240	N346	N341		RIGID	None	None	RIGID	Typical
215	M241	N340	N343		Posts	Beam	Rectangular	DF/SPine	Typical
216	M242	N339	N340		RIGID	None	None	RIGID	Typical
217	M243	N347	N339		RIGID	None	None	RIGID	Typical
218	M244	N341	N344		Posts	Beam	Rectangular	DF/SPine	Typical
219	M245	N342	N346		RIGID	None	None	RIGID	Typical
220	M246	N342	N347	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
221	M247	N348	N345		RIGID	None	None	RIGID	Typical
222	M248	N349	N348		RIGID	None	None	RIGID	Typical
223	M249	N357	N352		RIGID	None	None	RIGID	Typical
224	M250	N351	N354		Posts	Beam	Rectangular	DF/SPine	Typical
225	M251	N350	N351		RIGID	None	None	RIGID	Typical
226	M252	N358	N350		RIGID	None	None	RIGID	Typical
227	M253	N352	N355		Posts	Beam	Rectangular	DF/SPine	Typical
228	M254	N353	N357		RIGID	None	None	RIGID	Typical
229	M255	N353	N358	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
230	M256	N359	N356		RIGID	None	None	RIGID	Typical
231	M257	N360	N359		RIGID	None	None	RIGID	Typical
232	M258	N368	N363		RIGID	None	None	RIGID	Typical
233	M259	N362	N365		Posts	Beam	Rectangular	DF/SPine	Typical
234	M260	N361	N362		RIGID	None	None	RIGID	Typical
235	M261	N369	N361		RIGID	None	None	RIGID	Typical
236	M262	N363	N366		Posts	Beam	Rectangular	DF/SPine	Typical
237	M263	N364	N368		RIGID	None	None	RIGID	Typical
238	M264	N364	N369	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
239	M265	N370	N367		RIGID	None	None	RIGID	Typical
240	M266	N371	N370		RIGID	None	None	RIGID	Typical
241	M267	N379	N374		RIGID	None	None	RIGID	Typical
242	M268	N373	N376		Posts	Beam	Rectangular	DF/SPine	Typical
243	M269	N372	N373		RIGID	None	None	RIGID	Typical
244	M270	N380	N372		RIGID	None	None	RIGID	Typical
245	M271	N374	N377		Posts	Beam	Rectangular	DF/SPine	Typical
246	M272	N375	N379		RIGID	None	None	RIGID	Typical
247	M273	N375	N380	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
248	M274	N381	N378		RIGID	None	None	RIGID	Typical
249	M275	N382	N381		RIGID	None	None	RIGID	Typical
250	M276	N390	N385		RIGID	None	None	RIGID	Typical
251	M277	N384	N387		Posts	Beam	Rectangular	DF/SPine	Typical
252	M278	N383	N384		RIGID	None	None	RIGID	Typical
253	M279	N391	N383		RIGID	None	None	RIGID	Typical
254	M280	N385	N388		Posts	Beam	Rectangular	DF/SPine	Typical
255	M281	N386	N390		RIGID	None	None	RIGID	Typical
256	M282	N386	N391	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
257	M283	N392	N389		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
258	M284	N393	N392		RIGID	None	None	RIGID	Typical
259	M285	N401	N396		RIGID	None	None	RIGID	Typical
260	M286	N395	N398		Posts	Beam	Rectangular	DF/SPine	Typical
261	M287	N394	N395		RIGID	None	None	RIGID	Typical
262	M288	N402	N394		RIGID	None	None	RIGID	Typical
263	M289	N396	N399		Posts	Beam	Rectangular	DF/SPine	Typical
264	M290	N397	N401		RIGID	None	None	RIGID	Typical
265	M291	N397	N402	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
266	M292	N403	N400		RIGID	None	None	RIGID	Typical
267	M293	N404	N403		RIGID	None	None	RIGID	Typical
268	M294	N50	N406		Posts	Beam	Rectangular	DF/SPine	Typical
269	M295	N51	N405		Posts	Beam	Rectangular	DF/SPine	Typical
270	M296	N70	N407		Posts	Beam	Rectangular	DF/SPine	Typical
271	M297	N69	N408		Posts	Beam	Rectangular	DF/SPine	Typical
272	M298	N412	N409		RIGID	None	None	RIGID	Typical
273	M299	N418	N416		RIGID	None	None	RIGID	Typical
274	M300	N419	N418		RIGID	None	None	RIGID	Typical
275	M301	N417	N413		RIGID	None	None	RIGID	Typical
276	M302	N409	N411		Posts	Beam	Rectangular	DF/SPine	Typical
277	M303	N414	N412		RIGID	None	None	RIGID	Typical
278	M304	N413	N410		Posts	Beam	Rectangular	DF/SPine	Typical
279	M305	N415	N417		RIGID	None	None	RIGID	Typical
280	M306	N415	N414	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
281	M307	N421	N422		RIGID	None	None	RIGID	Typical
282	M308	N422	N420		RIGID	None	None	RIGID	Typical
283	M309	N424	N425		RIGID	None	None	RIGID	Typical
284	M310	N425	N423		RIGID	None	None	RIGID	Typical
285	M311	N427	N237		RIGID	None	None	RIGID	Typical
286	M312	N430	N432		RIGID	None	None	RIGID	Typical
287	M313	N433	N435	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
288	M314	N75	N434		Posts	Beam	Rectangular	DF/SPine	Typical
289	M315	N426	N75		RIGID	None	None	RIGID	Typical
290	M316	N428	N437		RIGID	None	None	RIGID	Typical
291	M317	N433	N431		RIGID	None	None	RIGID	Typical
292	M318	N431	N76		RIGID	None	None	RIGID	Typical
293	M319	N76	N429		Posts	Beam	Rectangular	DF/SPine	Typical
294	M320	N435	N426		RIGID	None	None	RIGID	Typical
295	M321	N432	N77		RIGID	None	None	RIGID	Typical
296	M322	N436	N427		RIGID	None	None	RIGID	Typical
297	M323	N437	N80		RIGID	None	None	RIGID	Typical
298	M324	N440	N451		RIGID	None	None	RIGID	Typical
299	M325	N443	N445		RIGID	None	None	RIGID	Typical
300	M326	N448	N450	90	Post Cross Angle	Beam	None	6061-T6 W	Typical
301	M327	N446	N449		Posts	Beam	Rectangular	DF/SPine	Typical
302	M328	N439	N446		RIGID	None	None	RIGID	Typical
303	M329	N441	N454		RIGID	None	None	RIGID	Typical
304	M330	N448	N444		RIGID	None	None	RIGID	Typical
305	M331	N444	N447		RIGID	None	None	RIGID	Typical
306	M332	N447	N442		Posts	Beam	Rectangular	DF/SPine	Typical
307	M333	N450	N439		RIGID	None	None	RIGID	Typical
308	M334	N445	N438		RIGID	None	None	RIGID	Typical
309	M335	N452	N440		RIGID	None	None	RIGID	Typical
310	M336	N454	N453		RIGID	None	None	RIGID	Typical
311	M337	N72	N456		Posts	Beam	Rectangular	DF/SPine	Typical
312	M338	N71	N455		Posts	Beam	Rectangular	DF/SPine	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
313	M339	N457	N105		Coped End	Beam	None	6061-T6	Typical
314	M340	N458	N203		Coped End	Beam	None	6061-T6	Typical
315	M341	N459	N206		Coped End	Beam	None	6061-T6	Typical
316	M342	N460	N103		Coped End	Beam	None	6061-T6	Typical
317	M343	N461	N324		Coped End	Beam	None	6061-T6	Typical
318	M344	N462	N333		Coped End	Beam	None	6061-T6	Typical
319	M345	N463	N457		34 Cross Beam	Beam	None	6061-T6 W	Typical
320	M346	N464	N458		34 Cross Beam	Beam	None	6061-T6 W	Typical
321	M347	N465	N459		34 Cross Beam	Beam	None	6061-T6 W	Typical
322	M348	N466	N460		34 Cross Beam	Beam	None	6061-T6 W	Typical
323	M349	N467	N461		34 Cross Beam	Beam	None	6061-T6 W	Typical
324	M350	N468	N462		34 Cross Beam	Beam	None	6061-T6 W	Typical

Member Distributed Loads (BLC 1 : DC (DL of structural components))

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	Y	-0.015	-0.015	0	%100
2	M3	Y	-0.015	-0.015	0	%100
3	M10	Y	-0.015	-0.015	0	%100
4	M11	Y	-0.015	-0.015	0	%100
5	M17	Y	-0.015	-0.015	0	%100
6	M18	Y	-0.015	-0.015	0	%100
7	M24	Y	-0.015	-0.015	0	%100
8	M25	Y	-0.015	-0.015	0	%100

Member Distributed Loads (BLC 8 : Stream Load)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M15	SZ	-0.035	-0.035	0	%100
2	M19	SZ	-0.035	-0.035	0	%100
3	M217	SZ	-0.035	-0.035	0	%100
4	M218	SZ	-0.035	-0.035	0	%100
5	M14	SZ	-0.035	-0.035	0	%100
6	M219	SZ	-0.035	-0.035	0	%100
7	M21	SZ	-0.035	-0.035	0	%100
8	M216	SZ	-0.035	-0.035	0	%100
9	M232	SZ	-0.035	-0.035	0	%100
10	M96	SZ	-0.035	-0.035	0	%100
11	M97	SZ	-0.035	-0.035	0	%100
12	M108	SZ	-0.035	-0.035	0	%100
13	M109	SZ	-0.035	-0.035	0	%100
14	M215	SZ	-0.035	-0.035	0	%100
15	M235	SZ	-0.035	-0.035	0	%100
16	M227	SZ	-0.035	-0.035	0	%100
17	M234	SZ	-0.035	-0.035	0	%100
18	M212	SZ	-0.035	-0.035	0	%100
19	M213	SZ	-0.035	-0.035	0	%100
20	M214	SZ	-0.035	-0.035	0	%100
21	M224	SZ	-0.035	-0.035	0	%100
22	M225	SZ	-0.035	-0.035	0	%100
23	M228	SZ	-0.035	-0.035	0	%100
24	M233	SZ	-0.035	-0.035	0	%100

Member Distributed Loads (BLC 9 : TG (Temperature gradient load))

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	T	0	0	0	%100
2	M97	T	60	60	0	%100
3	M11	T	60	60	0	%100
4	M126	T	60	60	0	%100
5	M20	T	60	60	0	%100
6	M18	T	60	60	0	%100
7	M36	T	60	60	0	%100
8	M76	T	60	60	0	%100
9	M1	T	60	60	0	%100
10	M74	T	60	60	0	%100
11	M309	T	60	60	0	%100
12	M41	T	60	60	0	%100
13	M3	T	60	60	0	%100
14	M70	T	60	60	0	%100
15	M44	T	60	60	0	%100
16	M248	T	60	60	0	%100
17	M13	T	60	60	0	%100
18	M137	T	60	60	0	%100
19	M10	T	60	60	0	%100
20	M75	T	60	60	0	%100
21	M32	T	60	60	0	%100
22	M181	T	60	60	0	%100
23	M179	T	60	60	0	%100
24	M17	T	60	60	0	%100
25	M77	T	60	60	0	%100
26	M38	T	60	60	0	%100
27	M297	T	60	60	0	%100
28	M68	T	60	60	0	%100
29	M66	T	60	60	0	%100
30	M24	T	60	60	0	%100
31	M25	T	60	60	0	%100
32	M26	T	60	60	0	%100
33	M215	T	60	60	0	%100
34	M193	T	60	60	0	%100
35	M27	T	60	60	0	%100
36	M165	T	60	60	0	%100
37	M91	T	60	60	0	%100
38	M33	T	60	60	0	%100
39	M245	T	60	60	0	%100
40	M117	T	60	60	0	%100
41	M15	T	60	60	0	%100
42	M266	T	60	60	0	%100
43	M16	T	60	60	0	%100
44	M253	T	60	60	0	%100
45	M14	T	60	60	0	%100
46	M40	T	60	60	0	%100
47	M19	T	60	60	0	%100
48	M21	T	60	60	0	%100
49	M35	T	60	60	0	%100
50	M51	T	60	60	0	%100
51	M28	T	60	60	0	%100
52	M39	T	60	60	0	%100
53	M29	T	60	60	0	%100
54	M30	T	60	60	0	%100
55	M34	T	60	60	0	%100

Member Distributed Loads (BLC 9 : TG (Temperature gradient load)) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
56	M335	T	60	60	0	%100
57	M31	T	60	60	0	%100
58	M37	T	60	60	0	%100
59	M42	T	60	60	0	%100
60	M132	T	60	60	0	%100
61	M43	T	60	60	0	%100
62	M45	T	60	60	0	%100
63	M118	T	60	60	0	%100
64	M79	T	60	60	0	%100
65	M82	T	60	60	0	%100
66	M46	T	60	60	0	%100
67	M67	T	60	60	0	%100
68	M173	T	60	60	0	%100
69	M149	T	60	60	0	%100
70	M47	T	60	60	0	%100
71	M115	T	60	60	0	%100
72	M48	T	60	60	0	%100
73	M196	T	60	60	0	%100
74	M49	T	60	60	0	%100
75	M50	T	60	60	0	%100
76	M52	T	60	60	0	%100
77	M109	T	60	60	0	%100
78	M53	T	60	60	0	%100
79	M54	T	60	60	0	%100
80	M326	T	60	60	0	%100
81	M202	T	60	60	0	%100
82	M78	T	60	60	0	%100
83	M55	T	60	60	0	%100
84	M64	T	60	60	0	%100
85	M65	T	60	60	0	%100
86	M69	T	60	60	0	%100
87	M71	T	60	60	0	%100
88	M250	T	60	60	0	%100
89	M72	T	60	60	0	%100
90	M73	T	60	60	0	%100
91	M294	T	60	60	0	%100
92	M189	T	60	60	0	%100
93	M80	T	60	60	0	%100
94	M81	T	60	60	0	%100
95	M83	T	60	60	0	%100
96	M84	T	60	60	0	%100
97	M212	T	60	60	0	%100
98	M85	T	60	60	0	%100
99	M239	T	60	60	0	%100
100	M86	T	60	60	0	%100
101	M308	T	60	60	0	%100
102	M199	T	60	60	0	%100
103	M87	T	60	60	0	%100
104	M88	T	60	60	0	%100
105	M89	T	60	60	0	%100
106	M90	T	60	60	0	%100
107	M122	T	60	60	0	%100
108	M92	T	60	60	0	%100
109	M93	T	60	60	0	%100
110	M276	T	60	60	0	%100

Member Distributed Loads (BLC 9 : TG (Temperature gradient load)) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
111	M94	T	60	60	0	%100
112	M95	T	60	60	0	%100
113	M96	T	60	60	0	%100
114	M108	T	60	60	0	%100
115	M337	T	60	60	0	%100
116	M333	T	60	60	0	%100
117	M155	T	60	60	0	%100
118	M112	T	60	60	0	%100
119	M113	T	60	60	0	%100
120	M311	T	60	60	0	%100
121	M114	T	60	60	0	%100
122	M116	T	60	60	0	%100
123	M119	T	60	60	0	%100
124	M192	T	60	60	0	%100
125	M138	T	60	60	0	%100
126	M120	T	60	60	0	%100
127	M121	T	60	60	0	%100
128	M123	T	60	60	0	%100
129	M124	T	60	60	0	%100
130	M234	T	60	60	0	%100
131	M125	T	60	60	0	%100
132	M144	T	60	60	0	%100
133	M127	T	60	60	0	%100
134	M128	T	60	60	0	%100
135	M129	T	60	60	0	%100
136	M130	T	60	60	0	%100
137	M131	T	60	60	0	%100
138	M133	T	60	60	0	%100
139	M216	T	60	60	0	%100
140	M177	T	60	60	0	%100
141	M134	T	60	60	0	%100
142	M228	T	60	60	0	%100
143	M135	T	60	60	0	%100
144	M136	T	60	60	0	%100
145	M229	T	60	60	0	%100
146	M139	T	60	60	0	%100
147	M178	T	60	60	0	%100
148	M140	T	60	60	0	%100
149	M141	T	60	60	0	%100
150	M230	T	60	60	0	%100
151	M142	T	60	60	0	%100
152	M143	T	60	60	0	%100
153	M145	T	60	60	0	%100
154	M204	T	60	60	0	%100
155	M146	T	60	60	0	%100
156	M190	T	60	60	0	%100
157	M147	T	60	60	0	%100
158	M289	T	60	60	0	%100
159	M148	T	60	60	0	%100
160	M150	T	60	60	0	%100
161	M151	T	60	60	0	%100
162	M313	T	60	60	0	%100
163	M312	T	60	60	0	%100
164	M152	T	60	60	0	%100
165	M153	T	60	60	0	%100

Member Distributed Loads (BLC 9 : TG (Temperature gradient load)) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
166	M265	T	60	60	0	%100
167	M154	T	60	60	0	%100
168	M156	T	60	60	0	%100
169	M260	T	60	60	0	%100
170	M157	T	60	60	0	%100
171	M158	T	60	60	0	%100
172	M159	T	60	60	0	%100
173	M160	T	60	60	0	%100
174	M213	T	60	60	0	%100
175	M161	T	60	60	0	%100
176	M162	T	60	60	0	%100
177	M163	T	60	60	0	%100
178	M164	T	60	60	0	%100
179	M166	T	60	60	0	%100
180	M167	T	60	60	0	%100
181	M288	T	60	60	0	%100
182	M169	T	60	60	0	%100
183	M168	T	60	60	0	%100
184	M170	T	60	60	0	%100
185	M171	T	60	60	0	%100
186	M241	T	60	60	0	%100
187	M172	T	60	60	0	%100
188	M205	T	60	60	0	%100
189	M174	T	60	60	0	%100
190	M175	T	60	60	0	%100
191	M274	T	60	60	0	%100
192	M176	T	60	60	0	%100
193	M180	T	60	60	0	%100
194	M182	T	60	60	0	%100
195	M183	T	60	60	0	%100
196	M184	T	60	60	0	%100
197	M185	T	60	60	0	%100
198	M186	T	60	60	0	%100
199	M187	T	60	60	0	%100
200	M188	T	60	60	0	%100
201	M246	T	60	60	0	%100
202	M191	T	60	60	0	%100
203	M194	T	60	60	0	%100
204	M195	T	60	60	0	%100
205	M321	T	60	60	0	%100
206	M197	T	60	60	0	%100
207	M198	T	60	60	0	%100
208	M200	T	60	60	0	%100
209	M201	T	60	60	0	%100
210	M203	T	60	60	0	%100
211	M287	T	60	60	0	%100
212	M206	T	60	60	0	%100
213	M207	T	60	60	0	%100
214	M208	T	60	60	0	%100
215	M278	T	60	60	0	%100
216	M209	T	60	60	0	%100
217	M210	T	60	60	0	%100
218	M291	T	60	60	0	%100
219	M211	T	60	60	0	%100
220	M214	T	60	60	0	%100

Member Distributed Loads (BLC 9 : TG (Temperature gradient load)) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
221	M232	T	60	60	0	%100
222	M217	T	60	60	0	%100
223	M218	T	60	60	0	%100
224	M219	T	60	60	0	%100
225	M279	T	60	60	0	%100
226	M220	T	60	60	0	%100
227	M221	T	60	60	0	%100
228	M222	T	60	60	0	%100
229	M223	T	60	60	0	%100
230	M224	T	60	60	0	%100
231	M236	T	60	60	0	%100
232	M225	T	60	60	0	%100
233	M227	T	60	60	0	%100
234	M233	T	60	60	0	%100
235	M235	T	60	60	0	%100
236	M237	T	60	60	0	%100
237	M268	T	60	60	0	%100
238	M238	T	60	60	0	%100
239	M240	T	60	60	0	%100
240	M242	T	60	60	0	%100
241	M243	T	60	60	0	%100
242	M270	T	60	60	0	%100
243	M244	T	60	60	0	%100
244	M325	T	60	60	0	%100
245	M247	T	60	60	0	%100
246	M249	T	60	60	0	%100
247	M251	T	60	60	0	%100
248	M259	T	60	60	0	%100
249	M252	T	60	60	0	%100
250	M254	T	60	60	0	%100
251	M255	T	60	60	0	%100
252	M256	T	60	60	0	%100
253	M316	T	60	60	0	%100
254	M257	T	60	60	0	%100
255	M315	T	60	60	0	%100
256	M258	T	60	60	0	%100
257	M261	T	60	60	0	%100
258	M293	T	60	60	0	%100
259	M262	T	60	60	0	%100
260	M264	T	60	60	0	%100
261	M263	T	60	60	0	%100
262	M267	T	60	60	0	%100
263	M285	T	60	60	0	%100
264	M269	T	60	60	0	%100
265	M271	T	60	60	0	%100
266	M272	T	60	60	0	%100
267	M273	T	60	60	0	%100
268	M275	T	60	60	0	%100
269	M277	T	60	60	0	%100
270	M280	T	60	60	0	%100
271	M281	T	60	60	0	%100
272	M282	T	60	60	0	%100
273	M295	T	60	60	0	%100
274	M283	T	60	60	0	%100
275	M284	T	60	60	0	%100

Member Distributed Loads (BLC 9 : TG (Temperature gradient load)) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
276	M286	T	60	60	0	%100
277	M290	T	60	60	0	%100
278	M292	T	60	60	0	%100
279	M296	T	60	60	0	%100
280	M298	T	60	60	0	%100
281	M299	T	60	60	0	%100
282	M300	T	60	60	0	%100
283	M301	T	60	60	0	%100
284	M302	T	60	60	0	%100
285	M303	T	60	60	0	%100
286	M304	T	60	60	0	%100
287	M305	T	60	60	0	%100
288	M306	T	60	60	0	%100
289	M307	T	60	60	0	%100
290	M310	T	60	60	0	%100
291	M314	T	60	60	0	%100
292	M317	T	60	60	0	%100
293	M318	T	60	60	0	%100
294	M324	T	60	60	0	%100
295	M319	T	60	60	0	%100
296	M320	T	60	60	0	%100
297	M322	T	60	60	0	%100
298	M323	T	60	60	0	%100
299	M327	T	60	60	0	%100
300	M328	T	60	60	0	%100
301	M329	T	60	60	0	%100
302	M330	T	60	60	0	%100
303	M331	T	60	60	0	%100
304	M332	T	60	60	0	%100
305	M334	T	60	60	0	%100
306	M336	T	60	60	0	%100
307	M338	T	60	60	0	%100
308	M339	T	60	60	0	%100
309	M340	T	60	60	0	%100
310	M341	T	60	60	0	%100
311	M342	T	60	60	0	%100
312	M343	T	60	60	0	%100
313	M344	T	60	60	0	%100
314	M23	T	60	60	0	%100
315	M345	T	60	60	0	%100
316	M110	T	60	60	0	%100
317	M346	T	60	60	0	%100
318	M111	T	60	60	0	%100
319	M347	T	60	60	0	%100
320	M22	T	60	60	0	%100
321	M348	T	60	60	0	%100
322	M226	T	60	60	0	%100
323	M349	T	60	60	0	%100
324	M231	T	60	60	0	%100
325	M350	T	60	60	0	%100

Member Distributed Loads (BLC 3 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M1	Y	-0.007	-0.007	5.551e-15	33.5
2	M3	Y	-0.007	-0.007	1.066e-14	33.5

Member Distributed Loads (BLC 3 : BLC 2 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
3	M16	Y	-0.014	-0.014	1.066e-14	33.5
4	M10	Y	-0.007	-0.007	6.717e-15	29.5
5	M11	Y	-0.007	-0.007	1.305e-14	29.5
6	M13	Y	-0.014	-0.014	1.305e-14	29.5
7	M17	Y	-0.007	-0.007	5.995e-15	25.5
8	M18	Y	-0.007	-0.007	8.327e-16	25.5
9	M20	Y	-0.014	-0.014	8.327e-16	25.5
10	M24	Y	-0.005	-0.004	0	2.25
11	M24	Y	-0.004	-0.004	2.25	4.5
12	M24	Y	-0.004	-0.004	4.5	6.75
13	M24	Y	-0.004	-0.004	6.75	9
14	M24	Y	-0.004	-0.004	9	11.25
15	M24	Y	-0.004	-0.005	11.25	13.5
16	M25	Y	-0.005	-0.004	0	2.25
17	M25	Y	-0.004	-0.004	2.25	4.5
18	M25	Y	-0.004	-0.004	4.5	6.75
19	M25	Y	-0.004	-0.004	6.75	9
20	M25	Y	-0.004	-0.004	9	11.25
21	M25	Y	-0.004	-0.005	11.25	13.5
22	M26	Y	-0.011	-0.009	0	2.25
23	M26	Y	-0.009	-0.008	2.25	4.5
24	M26	Y	-0.008	-0.008	4.5	6.75
25	M26	Y	-0.008	-0.008	6.75	9
26	M26	Y	-0.008	-0.009	9	11.25
27	M26	Y	-0.009	-0.011	11.25	13.5
28	M27	Y	-0.011	-0.009	0	2.25
29	M27	Y	-0.009	-0.008	2.25	4.5
30	M27	Y	-0.008	-0.008	4.5	6.75
31	M27	Y	-0.008	-0.008	6.75	9
32	M27	Y	-0.008	-0.009	9	11.25
33	M27	Y	-0.009	-0.011	11.25	13.5
34	M138	Y	-0.011	-0.009	0	2.25
35	M138	Y	-0.009	-0.008	2.25	4.5
36	M138	Y	-0.008	-0.008	4.5	6.75
37	M138	Y	-0.008	-0.008	6.75	9
38	M138	Y	-0.008	-0.009	9	11.25
39	M138	Y	-0.009	-0.011	11.25	13.5

Member Distributed Loads (BLC 10 : BLC 4 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M17	Y	-0.09	-0.09	5.995e-15	25.5
2	M18	Y	-0.09	-0.09	8.327e-16	25.5
3	M20	Y	-0.18	-0.18	8.327e-16	25.5
4	M24	Y	-0.07	-0.057	0	2.25
5	M24	Y	-0.057	-0.051	2.25	4.5
6	M24	Y	-0.051	-0.051	4.5	6.75
7	M24	Y	-0.051	-0.051	6.75	9
8	M24	Y	-0.051	-0.057	9	11.25
9	M24	Y	-0.057	-0.07	11.25	13.5
10	M25	Y	-0.07	-0.057	0	2.25
11	M25	Y	-0.057	-0.051	2.25	4.5
12	M25	Y	-0.051	-0.051	4.5	6.75
13	M25	Y	-0.051	-0.051	6.75	9
14	M25	Y	-0.051	-0.057	9	11.25
15	M25	Y	-0.057	-0.07	11.25	13.5

Member Distributed Loads (BLC 10 : BLC 4 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
16	M26	Y	-0.139	-0.114	0	2.25
17	M26	Y	-0.114	-0.102	2.25	4.5
18	M26	Y	-0.102	-0.102	4.5	6.75
19	M26	Y	-0.102	-0.102	6.75	9
20	M26	Y	-0.102	-0.114	9	11.25
21	M26	Y	-0.114	-0.139	11.25	13.5
22	M27	Y	-0.139	-0.114	0	2.25
23	M27	Y	-0.114	-0.102	2.25	4.5
24	M27	Y	-0.102	-0.102	4.5	6.75
25	M27	Y	-0.102	-0.102	6.75	9
26	M27	Y	-0.102	-0.114	9	11.25
27	M27	Y	-0.114	-0.139	11.25	13.5
28	M138	Y	-0.139	-0.114	0	2.25
29	M138	Y	-0.114	-0.102	2.25	4.5
30	M138	Y	-0.102	-0.102	4.5	6.75
31	M138	Y	-0.102	-0.102	6.75	9
32	M138	Y	-0.102	-0.114	9	11.25
33	M138	Y	-0.114	-0.139	11.25	13.5
34	M1	Y	-0.09	-0.09	5.551e-15	33.5
35	M3	Y	-0.09	-0.09	1.066e-14	33.5
36	M16	Y	-0.18	-0.18	1.066e-14	33.5
37	M10	Y	-0.09	-0.09	6.717e-15	29.5
38	M11	Y	-0.09	-0.09	1.305e-14	29.5
39	M13	Y	-0.18	-0.18	1.305e-14	29.5

Member Distributed Loads (BLC 11 : BLC 5 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	M271	Z	-0.135	-0.135	2.969	3.958
2	M280	Z	-0.037	-0.103	7.161e-15	0.99
3	M280	Z	-0.103	-0.135	0.99	1.979
4	M280	Z	-0.135	-0.135	1.979	2.969
5	M280	Z	-0.135	-0.135	2.969	3.958
6	M289	Z	-0.035	-0.097	6.828e-15	0.99
7	M289	Z	-0.097	-0.129	0.99	1.979
8	M289	Z	-0.129	-0.129	1.979	2.969
9	M289	Z	-0.129	-0.129	2.969	3.958
10	M295	Z	-0.017	-0.046	0	0.99
11	M295	Z	-0.046	-0.061	0.99	1.979
12	M295	Z	-0.061	-0.061	1.979	2.969
13	M295	Z	-0.061	-0.061	2.969	3.958
14	M25	Z	-0.014	-0.018	0	3.375
15	M25	Z	-0.018	-0.02	3.375	6.75
16	M25	Z	-0.02	-0.018	6.75	10.125
17	M25	Z	-0.018	-0.014	10.125	13.5
18	M296	Z	-0.015	-0.041	0	0.99
19	M296	Z	-0.041	-0.054	0.99	1.979
20	M296	Z	-0.054	-0.054	1.979	2.969
21	M296	Z	-0.054	-0.054	2.969	3.958
22	M304	Z	-0.033	-0.092	0	0.99
23	M304	Z	-0.092	-0.122	0.99	1.979
24	M304	Z	-0.122	-0.122	1.979	2.969
25	M304	Z	-0.122	-0.122	2.969	3.958
26	M319	Z	-0.037	-0.103	0	0.99
27	M319	Z	-0.103	-0.135	0.99	1.979
28	M319	Z	-0.135	-0.135	1.979	2.969

Member Distributed Loads (BLC 11 : BLC 5 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
29	M319	Z	-0.135	-0.135	2.969	3.958
30	M332	Z	-0.033	-0.092	4.496e-15	0.99
31	M332	Z	-0.092	-0.122	0.99	1.979
32	M332	Z	-0.122	-0.122	1.979	2.969
33	M332	Z	-0.122	-0.122	2.969	3.958
34	M337	Z	-0.015	-0.041	0	0.99
35	M337	Z	-0.041	-0.054	0.99	1.979
36	M337	Z	-0.054	-0.054	1.979	2.969
37	M337	Z	-0.054	-0.054	2.969	3.958
38	M3	Y	0.04	0.04	8.937e-15	33.5
39	M16	Y	0.04	0.04	5.551e-15	33.5
40	M11	Y	0.04	0.04	6.717e-15	29.5
41	M13	Y	0.04	0.04	1.094e-14	29.5
42	M18	Y	0.04	0.04	2.22e-15	25.5
43	M20	Y	0.04	0.04	8.327e-16	25.5
44	M25	Y	0.031	0.025	0	2.25
45	M25	Y	0.025	0.023	2.25	4.5
46	M25	Y	0.023	0.023	4.5	6.75
47	M25	Y	0.023	0.023	6.75	9
48	M25	Y	0.023	0.025	9	11.25
49	M25	Y	0.025	0.031	11.25	13.5
50	M26	Y	0.062	0.051	0	2.25
51	M26	Y	0.051	0.045	2.25	4.5
52	M26	Y	0.045	0.046	4.5	6.75
53	M26	Y	0.046	0.045	6.75	9
54	M26	Y	0.045	0.051	9	11.25
55	M26	Y	0.051	0.062	11.25	13.5
56	M138	Y	0.031	0.025	0	2.25
57	M138	Y	0.025	0.023	2.25	4.5
58	M138	Y	0.023	0.023	4.5	6.75
59	M138	Y	0.023	0.023	6.75	9
60	M138	Y	0.023	0.025	9	11.25
61	M138	Y	0.025	0.031	11.25	13.5
62	M3	Z	-0.017	-0.017	0	3.722
63	M3	Z	-0.017	-0.017	3.722	7.444
64	M3	Z	-0.017	-0.017	7.444	11.167
65	M3	Z	-0.017	-0.017	11.167	14.889
66	M3	Z	-0.017	-0.017	14.889	18.611
67	M3	Z	-0.017	-0.017	18.611	22.333
68	M3	Z	-0.017	-0.017	22.333	26.056
69	M3	Z	-0.017	-0.017	26.056	29.778
70	M3	Z	-0.017	-0.017	29.778	33.5
71	M36	Z	-0.018	-0.05	2.776e-16	0.99
72	M36	Z	-0.05	-0.065	0.99	1.979
73	M36	Z	-0.065	-0.065	1.979	2.969
74	M36	Z	-0.065	-0.065	2.969	3.958
75	M38	Z	-0.036	-0.101	1.665e-16	0.99
76	M38	Z	-0.101	-0.133	0.99	1.979
77	M38	Z	-0.133	-0.133	1.979	2.969
78	M38	Z	-0.133	-0.133	2.969	3.958
79	M40	Z	-0.018	-0.05	4.996e-16	0.99
80	M40	Z	-0.05	-0.065	0.99	1.979
81	M40	Z	-0.065	-0.065	1.979	2.969
82	M40	Z	-0.065	-0.065	2.969	3.958
83	M42	Z	-0.037	-0.103	2.22e-16	0.99

Member Distributed Loads (BLC 11 : BLC 5 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
84	M42	Z	-0.103	-0.135	0.99	1.979
85	M42	Z	-0.135	-0.135	1.979	2.969
86	M42	Z	-0.135	-0.135	2.969	3.958
87	M44	Z	-0.037	-0.103	2.776e-16	0.99
88	M44	Z	-0.103	-0.135	0.99	1.979
89	M44	Z	-0.135	-0.135	1.979	2.969
90	M44	Z	-0.135	-0.135	2.969	3.958
91	M46	Z	-0.037	-0.103	5.551e-17	0.99
92	M46	Z	-0.103	-0.135	0.99	1.979
93	M46	Z	-0.135	-0.135	1.979	2.969
94	M46	Z	-0.135	-0.135	2.969	3.958
95	M48	Z	-0.037	-0.103	5.551e-17	0.99
96	M48	Z	-0.103	-0.135	0.99	1.979
97	M48	Z	-0.135	-0.135	1.979	2.969
98	M48	Z	-0.135	-0.135	2.969	3.958
99	M50	Z	-0.037	-0.103	5.551e-16	0.99
100	M50	Z	-0.103	-0.135	0.99	1.979
101	M50	Z	-0.135	-0.135	1.979	2.969
102	M50	Z	-0.135	-0.135	2.969	3.958
103	M52	Z	-0.037	-0.103	0	0.99
104	M52	Z	-0.103	-0.135	0.99	1.979
105	M52	Z	-0.135	-0.135	1.979	2.969
106	M52	Z	-0.135	-0.135	2.969	3.958
107	M54	Z	-0.036	-0.101	4.441e-16	0.99
108	M54	Z	-0.101	-0.133	0.99	1.979
109	M54	Z	-0.133	-0.133	1.979	2.969
110	M54	Z	-0.133	-0.133	2.969	3.958
111	M11	Z	-0.016	-0.017	0	3.687
112	M11	Z	-0.017	-0.018	3.687	7.375
113	M11	Z	-0.018	-0.018	7.375	11.062
114	M11	Z	-0.018	-0.018	11.062	14.75
115	M11	Z	-0.018	-0.018	14.75	18.437
116	M11	Z	-0.018	-0.018	18.437	22.125
117	M11	Z	-0.018	-0.017	22.125	25.812
118	M11	Z	-0.017	-0.016	25.812	29.5
119	M112	Z	-0.017	-0.048	1.776e-15	0.99
120	M112	Z	-0.048	-0.063	0.99	1.979
121	M112	Z	-0.063	-0.063	1.979	2.969
122	M112	Z	-0.063	-0.063	2.969	3.958
123	M145	Z	-0.036	-0.099	1.887e-15	0.99
124	M145	Z	-0.099	-0.131	0.99	1.979
125	M145	Z	-0.131	-0.131	1.979	2.969
126	M145	Z	-0.131	-0.131	2.969	3.958
127	M154	Z	-0.037	-0.103	1.776e-15	0.99
128	M154	Z	-0.103	-0.135	0.99	1.979
129	M154	Z	-0.135	-0.135	1.979	2.969
130	M154	Z	-0.135	-0.135	2.969	3.958
131	M163	Z	-0.037	-0.103	1.055e-15	0.99
132	M163	Z	-0.103	-0.135	0.99	1.979
133	M163	Z	-0.135	-0.135	1.979	2.969
134	M163	Z	-0.135	-0.135	2.969	3.958
135	M172	Z	-0.037	-0.103	1.443e-15	0.99
136	M172	Z	-0.103	-0.135	0.99	1.979
137	M172	Z	-0.135	-0.135	1.979	2.969
138	M172	Z	-0.135	-0.135	2.969	3.958

Member Distributed Loads (BLC 11 : BLC 5 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
139	M181	Z	-0.037	-0.103	1.332e-15	0.99
140	M181	Z	-0.103	-0.135	0.99	1.979
141	M181	Z	-0.135	-0.135	1.979	2.969
142	M181	Z	-0.135	-0.135	2.969	3.958
143	M190	Z	-0.037	-0.103	1.055e-15	0.99
144	M190	Z	-0.103	-0.135	0.99	1.979
145	M190	Z	-0.135	-0.135	1.979	2.969
146	M190	Z	-0.135	-0.135	2.969	3.958
147	M199	Z	-0.036	-0.099	0	0.99
148	M199	Z	-0.099	-0.131	0.99	1.979
149	M199	Z	-0.131	-0.131	1.979	2.969
150	M199	Z	-0.131	-0.131	2.969	3.958
151	M202	Z	-0.017	-0.048	1.776e-15	0.99
152	M202	Z	-0.048	-0.063	0.99	1.979
153	M202	Z	-0.063	-0.063	1.979	2.969
154	M202	Z	-0.063	-0.063	2.969	3.958
155	M18	Z	-0.015	-0.017	0	3.643
156	M18	Z	-0.017	-0.018	3.643	7.286
157	M18	Z	-0.018	-0.018	7.286	10.928
158	M18	Z	-0.018	-0.018	10.928	14.571
159	M18	Z	-0.018	-0.018	14.571	18.214
160	M18	Z	-0.018	-0.017	18.214	21.857
161	M18	Z	-0.017	-0.015	21.857	25.5
162	M238	Z	-0.017	-0.046	0	0.99
163	M238	Z	-0.046	-0.061	0.99	1.979
164	M238	Z	-0.061	-0.061	1.979	2.969
165	M238	Z	-0.061	-0.061	2.969	3.958
166	M244	Z	-0.035	-0.097	0	0.99
167	M244	Z	-0.097	-0.129	0.99	1.979
168	M244	Z	-0.129	-0.129	1.979	2.969
169	M244	Z	-0.129	-0.129	2.969	3.958
170	M253	Z	-0.037	-0.103	0	0.99
171	M253	Z	-0.103	-0.135	0.99	1.979
172	M253	Z	-0.135	-0.135	1.979	2.969
173	M253	Z	-0.135	-0.135	2.969	3.958
174	M262	Z	-0.037	-0.103	2.22e-16	0.99
175	M262	Z	-0.103	-0.135	0.99	1.979
176	M262	Z	-0.135	-0.135	1.979	2.969
177	M262	Z	-0.135	-0.135	2.969	3.958
178	M271	Z	-0.037	-0.103	0	0.99
179	M271	Z	-0.103	-0.135	0.99	1.979
180	M271	Z	-0.135	-0.135	1.979	2.969

Member Area Loads (BLC 2 : DL of Post-Installed Deck)

	Node A	Node B	Node C	Node D	Direction	Load Direction	A Magnitude [ksf]	B Magnitude [ksf]	C Magnitude [ksf]	D Magnitude [ksf]	Exclude Braces
1	N3	N1	N4	N6	Y	A-B	-0.007	-0.007	-0.007	-0.007	Yes
2	N28	N27	N29	N30	Y	A-B	-0.007	-0.007	-0.007	-0.007	Yes
3	N49	N48	N50	N51	Y	A-B	-0.007	-0.007	-0.007	-0.007	Yes
4	N70	N69	N71	N72	Y	A-B	-0.007	-0.007	-0.007	-0.007	Yes

Member Area Loads (BLC 4 : PL (Pedestrian live load))

	Node A	Node B	Node C	Node D	Direction	Load Direction	A Magnitude [ksf]	B Magnitude [ksf]	C Magnitude [ksf]	D Magnitude [ksf]	Exclude Braces
1	N3	N1	N4	N6	Y	A-B	-0.09	-0.09	-0.09	-0.09	Yes
2	N28	N27	N29	N30	Y	A-B	-0.09	-0.09	-0.09	-0.09	Yes
3	N49	N48	N50	N51	Y	A-B	-0.09	-0.09	-0.09	-0.09	Yes
4	N70	N69	N71	N72	Y	A-B	-0.09	-0.09	-0.09	-0.09	Yes

Member Area Loads (BLC 5 : WS (Wind load on structure))

	Node A	Node B	Node C	Node D	Direction	Load Direction	A Magnitude [ksf]	B Magnitude [ksf]	C Magnitude [ksf]	D Magnitude [ksf]	Exclude Braces
1	N110	N3	N6	N144	Z	Two Way	-0.035	-0.035	-0.035	-0.035	Yes
2	N209	N28	N30	N315	Z	Two Way	-0.035	-0.035	-0.035	-0.035	Yes
3	N337	N49	N51	N405	Z	Two Way	-0.035	-0.035	-0.035	-0.035	Yes
4	N407	N70	N72	N456	Z	Two Way	-0.035	-0.035	-0.035	-0.035	Yes
5	N3	N86	N96	N6	Y	Two Way	0.04	0.04	0.04	0.04	Yes
6	N36	N28	N30	N37	Y	Two Way	0.04	0.04	0.04	0.04	Yes
7	N57	N49	N51	N58	Y	Two Way	0.04	0.04	0.04	0.04	Yes
8	N235	N70	N72	N236	Y	Two Way	0.04	0.04	0.04	0.04	Yes

Basic Load Cases

	BLC Description	Category	Y Gravity	Distributed	Area(Member)
1	DC (DL of structural components)	DL	-1.05	8	
2	DL of Post-Installed Deck	OL1			4
3	BLC 2 Transient Area Loads	None		39	
4	PL (Pedestrian live load)	LL			4
5	WS (Wind load on structure)	WL			8
6	EQ - Trans (Transverse seismic)	None			
7	EQ - Long (Longitudenal seismic)	None			
8	Stream Load	SL		24	
9	TG (Temperature gradient load)	None		325	
10	BLC 4 Transient Area Loads	None		39	
11	BLC 5 Transient Area Loads	None		180	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Total Weight	Yes	Y	1	1									2	1
2	Lifting Weight		Y	1	1										
3	Service Load Combinations														
4	1.0DC+1.0LL+0.3WS+0.5TG		Y	1	1	M1	1	M2	1	5	0.3	9	0.5	2	1
5	1.0DC+1.0PL+0.3WS+0.5TG		Y	1	1	4	1	5	0.5	9	0.5			2	1
6	1.0DC+1.3PL		Y	1	1			4	1.3					2	1
7	1.0DC+1.3LL (Center)		Y	1	1			M1	1.3	M2	1.3			2	1
8	1.0DC+1.3LL (Edge)		Y	1	1				1.3		1.3			2	1
9	1.0DC+0.7W		Y	1	1			5	0.7					2	1
10															
11	Strength Load Combinations														
12	SIV	Yes	Y	DL	1.5	SL	1							OL1	1.5
13	SIVb	Yes	Y	DL	0.9			SL	1					OL1	0.65
14	SI. 1.25DC + 1.75PL	Yes	Y	DL	1.25	LL	1.75	SL	1					OL1	1.5
15	SIII. 1.25DC + 1.40WS	Yes	Y	DL	1.25	WL	1.4	SL	1					OL1	1.5
16	SIIIb	Yes	Y	DL	0.9	WL	1.4	SL	1					OL1	0.65
17	SV	Yes	Y	DL	1.25	LL	1.35	SL	1	WL	0.4			OL1	1.25
18	SI. 1.25DC + 1.75LL (Edge)		Y	1	1.25		1.75		1.75	8	1			OL1	1.25
19	EI. 1.25DC + 1.0EQ(T)		Y	1	1.25	6	1							2	1.25

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
20	EI. 1.25DC + 1.0EQ(L)		Y	1	1.25	7	1							2	1.25
21															
22	Service														
23	Service I	Yes	Y	DL	1	LL	1	SL	1	WL	0.3	OL1	1		
24	Service II	Yes	Y	DL	1	LL	1.3	SL	1			OL1	1		
25	Service IV	Yes	Y	DL	1			SL	1	WL	0.7	OL1	1		
26															
27	Unfactored Individual Load Cases														
28	Pedestrian Load	Yes	Y	4	1										
29	Wind Load	Yes	Y	5	1										
30	EQ-Trans		Y	6	1										
31	EQ-Long		Y	7	1										
32	Temperature Differential		Y	9	1	DL	1	LL	1						
33	Vehicle Load (Center)		Y	M1	1	M2	1								
34	Vehicle Load (Edge)		Y		1		1								

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N6	max	0	29	0.067	16	0.309	15	3.187	15	0	29	0	29
2		min	0	1	-0.288	14	0	1	0.002	1	0	1	0	1
3	N4	max	0	29	0.021	16	0	13	0.252	16	0	29	0	29
4		min	0	1	-0.289	14	-0.068	15	-0.013	14	0	1	0	1
5	N1	max	0.477	14	0.021	16	0	13	0.251	16	0	29	0	29
6		min	-0.075	16	-0.288	14	-0.068	15	-0.013	14	0	1	0	1
7	N3	max	0.477	14	0.066	16	0.309	15	3.188	15	0	29	0	29
8		min	-0.085	16	-0.287	14	0	1	0.002	1	0	1	0	1
9	N27	max	0.365	14	0.666	14	0.098	16	0.075	16	0	29	0	29
10		min	-0.053	16	-0.007	29	0	1	-0.004	14	0	1	0	1
11	N28	max	0.362	14	0.667	14	0.477	16	2.535	15	0	29	0	29
12		min	-0.093	16	-0.13	29	0	28	-0.001	13	0	1	0	1
13	N29	max	0	29	0.67	14	0.121	15	0.082	16	0	29	0	29
14		min	0	1	-0.007	29	0	1	-0.007	14	0	1	0	1
15	N30	max	0	29	0.67	14	0.503	15	2.641	15	0	29	0	29
16		min	0	1	-0.13	29	0	28	-0.004	13	0	1	0	1
17	N36	max	0.144	16	0.974	14	0.124	15	0	13	0	29	0	29
18		min	-0.721	14	-0.112	29	0	28	-0.065	15	0	1	0	1
19	N37	max	0	29	0.969	14	0.163	15	0	28	0	29	0	29
20		min	0	1	-0.112	29	0	1	-0.076	15	0	1	0	1
21	N48	max	0.299	14	0.369	14	0.041	16	0.063	16	0	29	0	29
22		min	-0.054	16	0.001	29	0	28	-0.003	14	0	1	0	1
23	N49	max	0.299	14	0.369	14	0.411	15	1.864	15	0	29	0	29
24		min	-0.057	16	-0.073	29	0	1	0	1	0	1	0	1
25	N50	max	0	29	0.371	14	0.041	16	0.063	16	0	29	0	29
26		min	0	1	0.001	29	0	28	-0.003	14	0	1	0	1
27	N51	max	0	29	0.37	14	0.411	15	1.864	15	0	29	0	29
28		min	0	1	-0.074	29	0	1	0	1	0	1	0	1
29	N57	max	0.106	16	0.66	14	0.044	15	0	12	0	29	0	29
30		min	-0.577	14	-0.086	16	0	28	-0.055	15	0	1	0	1
31	N58	max	0	29	0.657	14	0.044	15	0	13	0	29	0	29
32		min	0	1	-0.086	16	0	1	-0.055	15	0	1	0	1
33	N69	max	0.158	14	1.1	14	0.145	15	0	12	0	29	0	29
34		min	-0.042	12	0.016	29	0	12	-0.046	15	0	1	0	1
35	N70	max	0.158	14	1.1	14	0.474	15	2.817	15	0	29	0	29
36		min	-0.112	15	-0.238	29	0	14	0	12	0	1	0	1
37	N71	max	0	29	1.103	14	0.144	16	0	12	0	29	0	29

Envelope Node Reactions (Continued)

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
38		min	0	1	0.013	29	0	12	-0.046	15	0	1	0	1
39	N72	max	0	29	1.103	14	0.472	15	2.817	15	0	29	0	29
40		min	0	1	-0.236	29	0	14	0	12	0	1	0	1
41	N73	max	0.097	15	1.341	14	0.228	15	0.003	14	0	29	0	29
42		min	-0.105	14	-0.232	29	-0.003	14	-0.073	15	0	1	0	1
43	N74	max	0	29	1.339	14	0.229	15	0.001	14	0	29	0	29
44		min	0	1	-0.238	29	-0.01	14	-0.072	15	0	1	0	1
45	N78	max	0.028	12	1.34	14	0.223	16	0.001	12	0	29	0	29
46		min	-0.104	14	-0.064	29	-0.001	12	-0.07	16	0	1	0	1
47	N79	max	0	29	1.339	14	0.219	16	0	12	0	29	0	29
48		min	0	1	-0.058	29	-0.003	12	-0.07	16	0	1	0	1
49	N86	max	0.153	16	0.082	14	0.001	13	0	1	0	29	0	29
50		min	-0.929	14	-0.059	15	-0.064	16	-0.053	15	0	1	0	1
51	N96	max	0	29	0.083	14	0.001	14	0	28	0	29	0	29
52		min	0	1	-0.06	15	-0.064	16	-0.054	15	0	1	0	1
53	N63	max	0.101	15	6.604	14	2.105	15	0.736	16	0	28	-0.006	1
54		min	0.002	1	0.713	13	0.04	1	-0.019	28	-0.335	16	-0.318	15
55	N67	max	0.005	14	6.499	14	1.134	16	0.068	14	0	1	0.317	16
56		min	-0.101	16	-4.812	16	-0.245	14	-1.255	16	-0.399	15	-0.015	14
57	N91	max	0.107	16	6.499	14	1.146	16	0.068	14	0.399	15	0.074	14
58		min	-0.016	14	-4.811	16	-0.245	14	-1.258	16	0	1	-0.318	16
59	N90	max	-0.002	13	6.603	14	2.092	15	0.739	16	0.334	16	0.295	15
60		min	-0.1	15	0.713	13	0.04	1	-0.019	28	0	28	0.007	13
61	N177	max	0	1	6.141	15	1.435	15	0.568	16	0.06	15	0.052	15
62		min	-0.009	15	0.542	1	0.046	1	-0.003	28	0	1	0.001	1
63	N179	max	0.01	16	4.082	14	0.939	16	0.134	14	0.079	15	0.022	14
64		min	-0.002	14	-6.276	16	-0.205	14	-1.185	15	0	28	-0.059	16
65	N187	max	0.019	16	5.506	15	1.596	15	0.547	16	0	1	0.007	28
66		min	-0.001	28	0.529	1	0.045	1	-0.006	28	-0.094	15	-0.105	15
67	N197	max	0	1	4.17	14	0.946	16	0.094	14	0	28	0.096	15
68		min	-0.019	16	-5.67	16	-0.232	14	-1.31	16	-0.116	15	-0.001	1
69	N235	max	0.046	15	1.39	14	0.247	16	0	13	0	29	0	29
70		min	-0.107	14	-0.156	29	0	14	-0.076	16	0	1	0	1
71	N236	max	0	29	1.387	14	0.239	16	0	14	0	29	0	29
72		min	0	1	-0.156	29	0	13	-0.077	16	0	1	0	1
73	N276	max	0.039	15	4.113	14	1.44	15	0.475	16	0	28	-0.003	28
74		min	0	28	0.445	13	0.026	1	-0.011	28	-0.136	16	-0.13	15
75	N321	max	0.002	14	4.001	14	0.704	16	0.051	14	0	1	0.125	16
76		min	-0.038	16	-3.465	16	-0.135	14	-1.084	16	-0.159	15	-0.003	14
77	N328	max	-0.001	1	4.113	14	1.435	15	0.476	16	0.136	16	0.113	15
78		min	-0.038	15	0.445	13	0.026	1	-0.011	28	0	28	0.003	1
79	N332	max	0.042	16	4.001	14	0.709	16	0.051	14	0.159	15	0.048	14
80		min	-0.011	14	-3.465	16	-0.135	14	-1.085	16	0	1	-0.126	16
81	Totals:	max	0	28	78.911	14	21.02	15						
82		min	0	15	-8.428	29	0	1						

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

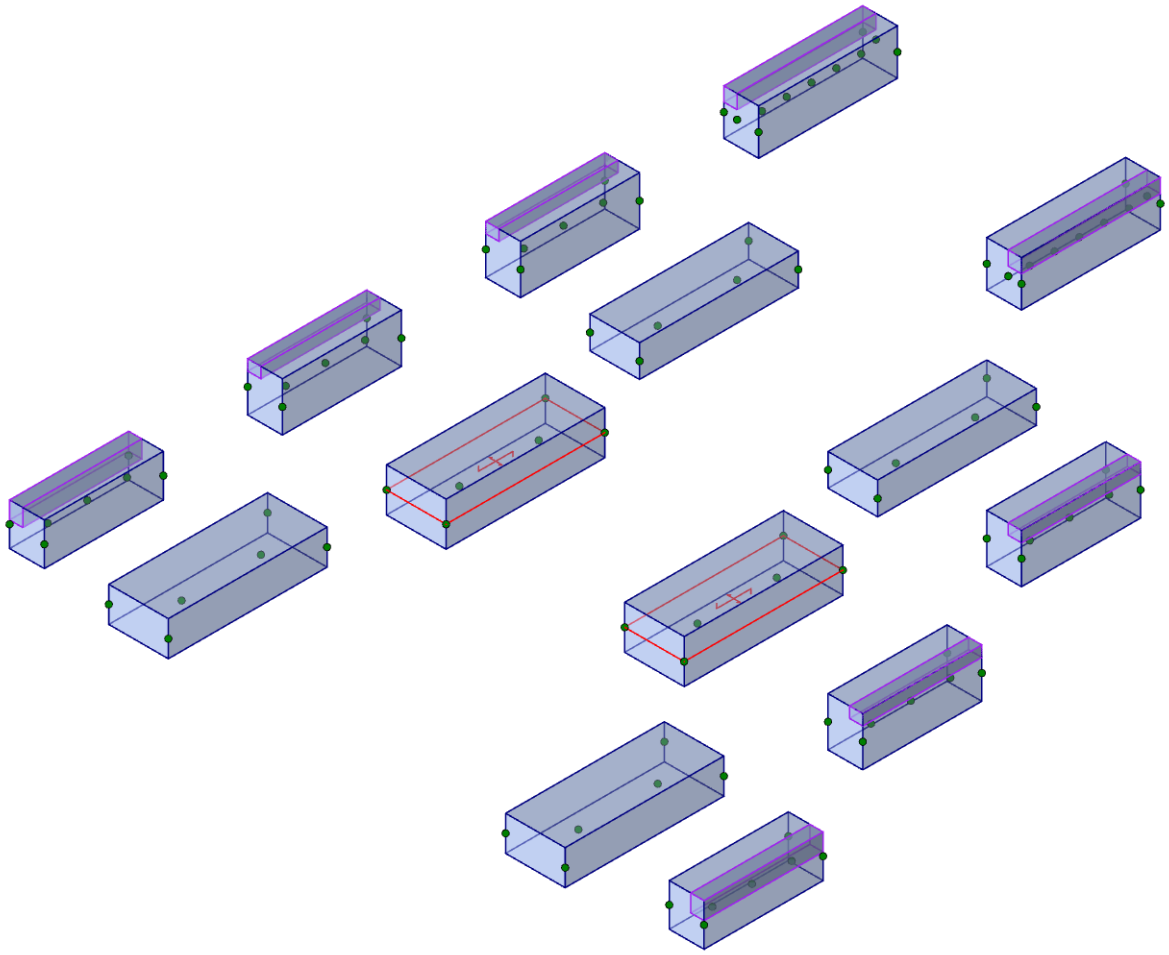
	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc[k]	phi*Pnt[k]	phi*Mny[k-ft]	phi*Mnz[k-ft]	phi*Vny[k]	phi*Vnz[k]	Cb	Eqn
1	M1	RT4X8X0.25	0.515	6.63	14	0.1	7.328	z	16	22.461	77.625	8.756	13.388	29.363	13.163	1	H.1-1
2	M3	RT4X8X0.25	0.514	6.63	14	0.652	26.521	z	15	22.461	77.625	8.756	13.388	29.363	13.163	1	H.1-1
3	M10	RT4X4X0.250	0.536	8.604	14	0.103	20.588	y	14	5.373	50.625	4.967	4.967	13.163	13.163	1.645	H.1-1
4	M11	RT4X4X0.250	0.537	8.604	14	0.648	8.911	z	15	5.373	50.625	4.967	4.967	13.163	13.163	1.648	H.1-1
5	M13	RT4X4X0.250	0.567	8.604	14	0.123	20.588	y	14	5.373	50.625	4.967	4.967	13.163	13.163	1.771	H.1-1
6	M17	RT4X4X0.250	0.489	6.641	14	0.108	18.594	y	14	7.191	50.625	4.967	4.967	13.163	13.163	1.157	H.1-1
7	M18	RT4X4X0.250	0.489	6.641	14	0.826	18.594	z	15	7.191	50.625	4.967	4.967	13.163	13.163	1.157	H.1-1

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc[k]	phi*Pnt[k]	phi*Mny[k-ft]	phi*Mnz[k-ft]	phi*Vny[k]	phi*Vnz[k]	Cb	Eqn
8	M20	RT4X4X0.250	0.531	6.641	14	0.122	7.172	y	14	7.191	50.625	4.967	4.967	13.163	13.163	1.187	H.1-1
9	M24	RT4X6X0.25	0.185	6.75	14	0.023	13.5	y	14	68.287	135.375	15.88	20.563	47.25	29.25	1.137	H.1-1
10	M25	RT4X6X0.25	0.185	6.75	14	0.179	0	z	15	68.287	135.375	15.88	20.563	47.25	29.25	1.137	H.1-1
11	M26	RT4X6X0.25	0.202	6.75	14	0.029	0	y	14	68.287	135.375	15.88	20.563	47.25	29.25	1.124	H.1-1
12	M27	RT4X6X0.25	0.202	6.75	14	0.029	0	y	14	68.287	135.375	15.88	20.563	47.25	29.25	1.124	H.1-1
13	M16	RT4X8X0.25	0.503	6.63	14	0.122	26.521	z	15	22.461	77.625	8.756	13.388	29.363	13.163	1	H.1-1
14	M14	RT4X4X0.250	0.927	3.476	16	0.228	3.476	z	15	48.228	50.625	4.967	4.967	13.163	13.163	1.799	H.1-1
15	M15	RT4X4X0.250	0.273	0	15	0.169	3.514	z	16	48.228	50.625	4.967	4.967	13.163	13.163	1.799	H.1-1
16	M19	RT4X4X0.250	0.927	3.476	16	0.228	3.476	z	15	48.228	50.625	4.967	4.967	13.163	13.163	1.797	H.1-1
17	M21	RT4X4X0.250	0.269	0	15	0.169	3.514	z	16	48.228	50.625	4.967	4.967	13.163	13.163	1.801	H.1-1
18	M22	ALPL4.5X0.19	0.312	0.208	14	0.166	0	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
19	M23	ALPL4.5X0.19	0.337	0.208	14	0.212	0	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
20	M96	RT4X4X0.250	0.766	8.649	16	0.09	8.741	z	15	34.831	50.625	4.967	4.967	13.163	13.163	1.77	H.1-1
21	M97	RT4X4X0.250	0.219	0	15	0.056	8.741	z	16	34.831	50.625	4.967	4.967	13.163	13.163	1.773	H.1-1
22	M108	RT4X4X0.250	0.814	6.62	16	0.116	6.691	z	15	39.869	50.625	4.967	4.967	13.163	13.163	1.778	H.1-1
23	M109	RT4X4X0.250	0.208	0	15	0.066	6.691	z	16	39.869	50.625	4.967	4.967	13.163	13.163	1.776	H.1-1
24	M110	ALPL4.5X0.19	0.224	0.208	14	0.109	0	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
25	M111	ALPL4.5X0.19	0.224	0.208	14	0.112	0	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
26	M114	L3X3X0.25	0.248	2	14	0.015	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
27	M115	L3X3X0.25	0.493	2	16	0.026	2	y	16	11.317	19.305	0.704	1.323	5.822	5.822	1	H.1-1
28	M116	L3X3X0.25	0.618	2	16	0.035	2	y	16	11.317	19.305	0.704	1.323	5.822	5.822	1	H.1-1
29	M117	L3X3X0.25	0.515	2	14	0.032	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
30	M118	L3X3X0.25	0.514	2	14	0.032	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
31	M119	L3X3X0.25	0.611	2	16	0.034	4	y	16	11.317	19.305	0.704	1.323	5.822	5.822	1	H.1-1
32	M120	L3X3X0.25	0.485	2	16	0.025	2	y	15	11.317	19.305	0.704	1.323	5.822	5.822	1	H.1-1
33	M121	L3X3X0.25	0.233	2	14	0.013	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
34	M138	RT4X6X0.25	0.209	6.609	14	0.029	0	y	14	68.287	135.375	15.88	20.563	47.25	29.25	1.124	H.1-1
35	M147	L3X3X0.25	0.362	2	14	0.023	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
36	M156	L3X3X0.25	0.299	2	14	0.018	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
37	M165	L3X3X0.25	0.339	2	16	0.021	4	z	14	11.317	19.305	0.704	1.323	5.822	5.822	1	H.1-1
38	M174	L3X3X0.25	0.448	2	14	0.028	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
39	M183	L3X3X0.25	0.323	2	14	0.019	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
40	M192	L3X3X0.25	0.306	2	14	0.018	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
41	M201	L3X3X0.25	0.375	2	16	0.022	4	z	14	11.317	19.305	0.704	1.323	5.822	5.822	1	H.1-1
42	M212	L3X3X0.25	0.204	3.887	15	0.002	3.887	y	16	15.715	40.755	1.442	1.445	12.938	12.938	1	H.1-1
43	M213	L3X3X0.25	0.108	3.887	16	0.003	3.887	y	15	15.715	40.755	1.512	1.445	12.938	12.938	1	H.1-1
44	M214	L3X3X0.25	0.114	4.773	16	0.003	4.773	y	15	10.425	40.755	1.512	1.212	12.938	12.938	1	H.1-1
45	M215	L3X3X0.25	0.348	4.773	15	0.003	4.773	y	16	10.425	40.755	1.442	1.212	12.938	12.938	1	H.1-1
46	M216	L3X3X0.25	0.121	2.658	15	0.003	2.658	z	16	26.815	40.755	1.442	1.946	12.938	12.938	1	H.1-1
47	M217	L3X3X0.25	0.109	2.658	16	0.003	2.658	y	15	26.815	40.755	1.442	1.946	12.938	12.938	1	H.1-1
48	M218	L3X3X0.25	0.127	2.658	15	0.004	2.658	y	16	26.815	40.755	1.512	1.946	12.938	12.938	1	H.1-1
49	M219	L3X3X0.25	0.121	2.658	16	0.003	0	y	15	26.815	40.755	1.512	1.946	12.938	12.938	1	H.1-1
50	M224	RT4X4X0.250	0.729	3.634	16	0.138	3.634	z	15	47.777	50.625	4.967	4.967	13.163	13.163	1.798	H.1-1
51	M225	RT4X4X0.250	0.165	0	15	0.092	3.674	z	16	47.777	50.625	4.967	4.967	13.163	13.163	1.796	H.1-1
52	M226	ALPL4.5X0.19	0.205	0.208	14	0.103	0	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
53	M227	L3X3X0.25	0.077	2.713	15	0.001	2.713	y	16	26.767	40.755	1.442	1.918	12.938	12.938	1	H.1-1
54	M228	L3X3X0.25	0.071	2.713	16	0.002	2.713	y	15	26.767	40.755	1.442	1.918	12.938	12.938	1	H.1-1
55	M231	ALPL4.5X0.19	0.225	0.208	14	0.128	0	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
56	M232	RT4X4X0.250	0.729	3.634	16	0.138	3.634	z	15	47.777	50.625	4.967	4.967	13.163	13.163	1.794	H.1-1
57	M233	RT4X4X0.250	0.162	0	15	0.091	3.674	z	16	47.777	50.625	4.967	4.967	13.163	13.163	1.799	H.1-1
58	M234	L3X3X0.25	0.08	2.713	16	0.002	0	y	15	26.767	40.755	1.512	1.918	12.938	12.938	1	H.1-1
59	M235	L3X3X0.25	0.085	2.713	15	0.002	2.713	y	16	26.767	40.755	1.442	1.918	12.938	12.938	1	H.1-1
60	M246	L3X3X0.25	0.259	2	14	0.016	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
61	M255	L3X3X0.25	0.25	2	14	0.016	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
62	M264	L3X3X0.25	0.416	2	14	0.027	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc[k]	phi*Pnt[k]	phi*Mny[k-ft]	phi*Mnz[k-ft]	phi*Vny[k]	phi*Vnz[k]	Cb	Eqn
63	M273	L3X3X0.25	0.412	2	14	0.026	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
64	M282	L3X3X0.25	0.244	2	14	0.015	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
65	M291	L3X3X0.25	0.255	2	14	0.015	4	z	14	11.317	19.305	0.648	1.323	5.822	5.822	1	H.1-1
66	M306	L3X3X0.25	0.642	1.25	15	0.093	2.5	y	15	8.905	19.305	0.704	1.247	5.822	5.822	1	H.1-1
67	M313	L3X3X0.25	0.313	2.5	14	0.026	0	z	14	8.905	19.305	0.648	1.247	5.822	5.822	1	H.1-1
68	M326	L3X3X0.25	0.614	1.25	15	0.09	2.5	y	15	8.905	19.305	0.648	1.247	5.822	5.822	1	H.1-1
69	M339	ALPL4.5X0.19	0.364	0	16	0.212	0.208	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
70	M340	ALPL4.5X0.19	0.222	0	14	0.11	0.208	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
71	M341	ALPL4.5X0.19	0.226	0	14	0.112	0.208	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
72	M342	ALPL4.5X0.19	0.369	0	16	0.166	0.208	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
73	M343	ALPL4.5X0.19	0.205	0	14	0.103	0.208	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
74	M344	ALPL4.5X0.19	0.228	0	14	0.128	0.208	y	14	19.784	24.368	0.096	1.651	15.39	15.39	1	H.1-1
75	M345	AAI6X4.03	0.631	1.792	14	0.285	3.583	y	14	38.953	46.305	2.616	7.539	9.234	18.792	1.238	H.1-1
76	M346	AAI6X4.03	0.441	1.792	14	0.179	3.583	y	14	38.953	46.305	2.616	7.539	9.234	18.792	1.238	H.1-1
77	M347	AAI6X4.03	0.443	1.792	14	0.181	0	y	14	38.953	46.305	2.616	7.539	9.234	18.792	1.238	H.1-1
78	M348	AAI6X4.03	0.618	1.792	14	0.258	0	y	14	38.953	46.305	2.616	7.539	9.234	18.792	1.238	H.1-1
79	M349	AAI6X4.03	0.407	1.792	14	0.168	0	y	14	38.953	46.305	2.616	7.539	9.234	18.792	1.238	H.1-1
80	M350	AAI6X4.03	0.417	1.792	14	0.183	0	y	14	38.953	46.305	2.616	7.539	9.234	18.792	1.238	H.1-1


Z
X

Concrete Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	f'c [ksi]	Lambda	Flex Steel [ksi]	Shear Steel [ksi]
1	Conc3000NW	3156	1372	0.15	0.6	0.145	3	1	60	60
2	Conc3500NW	3409	1482	0.15	0.6	0.145	3.5	1	60	60
3	Conc4000NW	3644	1584	0.15	0.6	0.145	4	1	60	60
4	Conc3000LW	2085	907	0.15	0.6	0.11	3	1	60	60
5	Conc3500LW	2252	979	0.15	0.6	0.11	3.5	1	60	60
6	Conc4000LW	2408	1047	0.15	0.6	0.11	4	1	60	60
7	Conc3000NW_1	3156	1372	0.15	0.6	0.145	3	1	60	60
8	Conc3500NW_1	3409	1482	0.15	0.6	0.145	3.5	1	60	60
9	Conc4000NW_1	3644	1584	0.15	0.6	0.145	4	1	60	60
10	Conc3000LW_2	2085	907	0.15	0.6	0.11	3	1	60	60
11	Conc3500LW_2	2252	979	0.15	0.6	0.11	3.5	1	60	60
12	Conc4000LW_2	2408	1047	0.15	0.6	0.11	4	1	60	60
13	Conc3000LW_1	2085	907	0.15	0.6	0.11	3	0.75	60	60
14	Conc3500LW_1	2252	979	0.15	0.6	0.11	3.5	0.75	60	60
15	Conc4000LW_1	2408	1047	0.15	0.6	0.11	4	0.75	60	60

Design Rules - Mat Slab

	Label	Max Bending Chk	Max Shear Chk	Top Bar	Bottom Bar	Min Top Bar Spacing [in]	Max Top Bar Spacing [in]	Min Bot Bar Spacing [in]	Max Bot Bar Spacing [in]	Spacing Increment [in]	Top Cover [in]	Bottom Cover [in]	Side Cover [in]	Rebar Options
1	Typical	1	1	#5	#5	3	18	3	18	1	1.5	1.5	0	Optimize

Soil Definitions

	Label	Layers	Subgrade Modulus [k/ft^{3}]	Allowable Bearing [ksf]	Default
1	Default	Single	100	3	Yes

Node Coordinate

	Label	Z [ft]	X [ft]
1	R3D_N1	0	0
2	R3D_N3	4	0
3	R3D_N4	0	33.5
4	R3D_N6	4	33.5
5	R3D_N27	-12	0
6	R3D_N28	-8	0
7	R3D_N29	-12	29.4997
8	R3D_N30	-8	29.4997
9	R3D_N36	-10	0
10	R3D_N37	-10	29.4997
11	R3D_N48	-24	0
12	R3D_N49	-20	0
13	R3D_N50	-24	25.4997
14	R3D_N51	-20	25.4997
15	R3D_N57	-22	0
16	R3D_N58	-22	25.4997
17	R3D_N69	-37	0
18	R3D_N70	-32	0
19	R3D_N71	-37	13.4997
20	R3D_N72	-32	13.4997
21	R3D_N73	-33.25	0
22	R3D_N74	-33.25	13.4997
23	R3D_N78	-35.75	0
24	R3D_N79	-35.75	13.4997
25	R3D_N86	2	0

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
26	R3D_N96	2	33.5
27	R3D_N63	0	6.75003
28	R3D_N67	4	6.75003
29	R3D_N90	0	26.75003
30	R3D_N91	4	26.75003
31	R3D_N177	-12	20.75003
32	R3D_N179	-8	20.75003
33	R3D_N187	-12	8.75003
34	R3D_N197	-8	8.75003
35	R3D_N235	-34.5	0
36	R3D_N236	-34.5	13.4997
37	R3D_N276	-24	6.75003
38	R3D_N321	-20	6.75003
39	R3D_N328	-24	18.75003
40	R3D_N332	-20	18.75003
41	N41	-1	-0.91667
42	N42	5	-0.91667
43	N43	5	0.8333
44	N44	-1	0.8333
45	N45	-2	5.08333
46	N46	6	5.08333
47	N47	6	8.08333
48	N48	-2	8.08333
49	N49	-2	25.08333
50	N50	6	25.08333
51	N51	6	28.08333
52	N52	-2	28.08333
53	N54	-1	34.08333
54	N55	5	34.08333
55	N56	-1	32.333
56	N57	5	32.333
57	N62	-13	-0.91667
58	N63	-7	-0.91667
59	N64	-7	0.8333
60	N65	-13	0.8333
61	N68	-25	-0.91667
62	N69	-19	-0.91667
63	N70	-19	0.8333
64	N71	-25	0.8333
65	N74	-13	30.08333
66	N75	-7	30.08333
67	N76	-13	28.333
68	N77	-7	28.333
69	N80	-25	26.08333
70	N81	-19	26.08333
71	N82	-25	24.333
72	N83	-19	24.333
73	N86	-14	7.08333
74	N87	-6	7.08333
75	N88	-6	10.08333
76	N89	-14	10.08333
77	N90	-26	5.33333
78	N91	-18	5.33333
79	N92	-18	7.83333
80	N93	-26	7.83333

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
81	N94	-14	19.08333
82	N95	-6	19.08333
83	N96	-6	22.08333
84	N97	-14	22.08333
85	N98	-26	17.33333
86	N99	-18	17.33333
87	N100	-18	19.83333
88	N101	-26	19.83333
89	N102	-38	-0.91667
90	N103	-31	-0.91667
91	N104	-31	0.833
92	N105	-38	0.833
93	N106	-38	12.333
94	N107	-31	12.333
95	N108	-31	14.08333
96	N109	-38	14.08333
97	N110	-38	-0.24997
98	N111	-31	-0.24997
99	N112	-31	13.41663
100	N113	-38	13.41663
101	N114	5	-0.24997
102	N115	-1	-0.24997
103	N116	5	33.41663
104	N117	-1	33.41663
105	N118	-7	-0.24997
106	N119	-13	-0.24997
107	N120	-19	-0.24997
108	N121	-25	-0.24997
109	N122	-7	29.41663
110	N123	-13	29.41663
111	N124	-19	25.41663
112	N125	-25	25.41663
113	N126	4.031426	6.58333
114	N127	4.131887	8.08333
115	N128	2	8.08333
116	N129	1.999614	6.58333
117	N130	4.031426	26.58333
118	N131	4.131887	28.08333
119	N132	2	28.08333
120	N133	1.999614	26.58333
121	N134	1.99993	-0.58332
122	N135	2	-0.24997
123	N136	1.105392	-0.24997
124	N137	1.171964	-0.58332
125	N138	1.997349	32.865912
126	N139	2	33.41663
127	N140	1.105392	33.41663
128	N141	0.64076	32.830531
129	N142	-10.00007	-0.58332
130	N143	-10	-0.24997
131	N144	-10.894608	-0.24997
132	N145	-10.828036	-0.58332
133	N146	-22.00007	-0.58332
134	N147	-22	-0.24997
135	N148	-22.894608	-0.24997

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
136	N149	-22.828036	-0.58332
137	N150	-10.002735	28.865943
138	N151	-10	29.41663
139	N152	-10.894608	29.41663
140	N153	-11.349598	28.82628
141	N154	-21.99976	24.860141
142	N155	-22	25.41663
143	N156	-22.894608	25.41663
144	N157	-23.337982	24.81659
145	N158	-7.968574	8.58333
146	N159	-7.868113	10.08333
147	N160	-10	10.08333
148	N161	-10.000386	8.58333
149	N162	-19.932621	6.58333
150	N163	-19.730089	7.83333
151	N164	-22	7.83333
152	N165	-22.000791	6.58333
153	N166	-7.968574	20.58333
154	N167	-7.868113	22.08333
155	N168	-10	22.08333
156	N169	-10.000386	20.58333
157	N170	-19.932621	18.58333
158	N171	-19.730089	19.83333
159	N172	-22	19.83333
160	N173	-22.000791	18.58333
161	N174	-34.500093	-0.58332
162	N175	-34.5	-0.24997
163	N176	-35.502377	-0.24997
164	N177	-35.455073	-0.58332
165	N178	-34.499907	13.74998
166	N179	-34.5	13.41663
167	N180	-33.497623	13.41663
168	N181	-33.544927	13.74998
169	N182	-0.034517	6.58333
170	N183	-0.131887	5.08333
171	N184	2	5.08333
172	N185	-0.034517	26.58333
173	N186	-0.131887	25.08333
174	N187	2	25.08333
175	N188	2.002645	0.304041
176	N189	2.894608	-0.24997
177	N190	3.368952	0.339996
178	N191	4.611122	-0.58332
179	N192	4.656876	-0.24997
180	N193	4.212842	-0.24997
181	N194	4.14822	-0.58332
182	N195	-0.611011	-0.58332
183	N196	-0.656876	-0.91667
184	N197	-0.212842	-0.91667
185	N198	-0.148181	-0.58332
186	N199	0.652205	0.342342
187	N200	0.37566	0.034696
188	N201	0.36178	-0.24997
189	N202	5	0.216177
190	N203	4.349078	0.363123

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
191	N204	3.558763	-0.58332
192	N205	3.63822	-0.91667
193	N206	4.212842	-0.91667
194	N207	0.441441	-0.58332
195	N208	-0.212842	-0.24997
196	N209	-0.350284	0.359786
197	N210	-1	0.216177
198	N211	-0.656876	-0.24997
199	N212	-0.098061	0.030004
200	N213	0.672644	0.8333
201	N214	-0.294832	0.8333
202	N215	3.638754	0.038546
203	N216	3.63822	-0.24997
204	N217	4.097173	0.049758
205	N218	4.294832	0.8333
206	N219	3.327356	0.8333
207	N220	2.00007	33.74998
208	N221	2.894608	33.41663
209	N222	2.828036	33.74998
210	N223	3.347796	32.82418
211	N224	3.623988	33.131134
212	N225	3.63822	33.41663
213	N226	-1	32.950379
214	N227	-0.349405	32.815652
215	N228	-0.656876	33.41663
216	N229	-0.611122	33.74998
217	N230	-0.212842	33.41663
218	N231	-0.14822	33.74998
219	N232	4.611011	33.74998
220	N233	4.656876	34.08333
221	N234	4.212842	34.08333
222	N235	4.148181	33.74998
223	N236	4.343935	32.805314
224	N237	5	32.950379
225	N238	4.656876	33.41663
226	N239	4.09818	33.136487
227	N240	4.212842	33.41663
228	N241	3.327285	32.333
229	N242	4.294774	32.333
230	N243	0.36959	33.140445
231	N244	0.36178	33.41663
232	N245	-0.098765	33.142251
233	N246	-0.294774	32.333
234	N247	0.672715	32.333
235	N248	0.441237	33.74998
236	N249	0.36178	34.08333
237	N250	-0.212842	34.08333
238	N251	3.558559	33.74998
239	N252	-9.999125	0.304186
240	N253	-9.105392	-0.24997
241	N254	-8.649472	0.347104
242	N255	-7.388878	-0.58332
243	N256	-7.343124	-0.24997
244	N257	-7.787158	-0.24997
245	N258	-7.85178	-0.58332

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
246	N259	-12.611011	-0.58332
247	N260	-12.656876	-0.91667
248	N261	-12.212842	-0.91667
249	N262	-12.148181	-0.58332
250	N263	-11.343907	0.344333
251	N264	-11.625903	0.031467
252	N265	-11.63822	-0.24997
253	N266	-7	0.216177
254	N267	-7.663118	0.365618
255	N268	-8.441237	-0.58332
256	N269	-8.36178	-0.91667
257	N270	-7.787158	-0.91667
258	N271	-11.558559	-0.58332
259	N272	-12.212842	-0.24997
260	N273	-12.36757	0.36549
261	N274	-13	0.216177
262	N275	-12.656876	-0.24997
263	N276	-12.102741	0.040674
264	N277	-11.327356	0.8333
265	N278	-12.294832	0.8333
266	N279	-8.374721	0.034698
267	N280	-8.36178	-0.24997
268	N281	-7.910842	0.04129
269	N282	-7.705168	0.8333
270	N283	-8.672644	0.8333
271	N284	-21.997357	0.304039
272	N285	-21.105392	-0.24997
273	N286	-20.631048	0.339996
274	N287	-19.388878	-0.58332
275	N288	-19.343124	-0.24997
276	N289	-19.787158	-0.24997
277	N290	-19.85178	-0.58332
278	N291	-24.611011	-0.58332
279	N292	-24.656876	-0.91667
280	N293	-24.212842	-0.91667
281	N294	-24.148181	-0.58332
282	N295	-23.34781	0.342328
283	N296	-23.624343	0.034695
284	N297	-23.63822	-0.24997
285	N298	-19	0.216177
286	N299	-19.650922	0.363123
287	N300	-20.441237	-0.58332
288	N301	-20.36178	-0.91667
289	N302	-19.787158	-0.91667
290	N303	-23.558559	-0.58332
291	N304	-24.212842	-0.24997
292	N305	-24.350889	0.360271
293	N306	-25	0.216177
294	N307	-24.656876	-0.24997
295	N308	-24.09814	0.029749
296	N309	-23.327356	0.8333
297	N310	-24.294832	0.8333
298	N311	-20.361246	0.038546
299	N312	-20.36178	-0.24997
300	N313	-19.902827	0.049758

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
301	N314	-19.705168	0.8333
302	N315	-20.672644	0.8333
303	N316	-9.99993	29.74998
304	N317	-9.105392	29.41663
305	N318	-9.171964	29.74998
306	N319	-8.65294	28.824477
307	N320	-8.375238	29.132172
308	N321	-8.36178	29.41663
309	N322	-13	28.950379
310	N323	-12.345598	28.805562
311	N324	-12.656876	29.41663
312	N325	-12.611122	29.74998
313	N326	-12.212842	29.41663
314	N327	-12.14822	29.74998
315	N328	-7.388989	29.74998
316	N329	-7.343124	30.08333
317	N330	-7.787158	30.08333
318	N331	-7.851819	29.74998
319	N332	-7.654741	28.804304
320	N333	-7	28.950379
321	N334	-7.343124	29.41663
322	N335	-7.904168	29.136764
323	N336	-7.787158	29.41663
324	N337	-8.672715	28.333
325	N338	-7.705226	28.333
326	N339	-11.627886	29.141076
327	N340	-11.63822	29.41663
328	N341	-12.096491	29.112835
329	N342	-12.294774	28.333
330	N343	-11.327285	28.333
331	N344	-11.558763	29.74998
332	N345	-11.63822	30.08333
333	N346	-12.212842	30.08333
334	N347	-8.441441	29.74998
335	N348	-21.99993	25.74998
336	N349	-21.105392	25.41663
337	N350	-21.171964	25.74998
338	N351	-20.6601	24.815644
339	N352	-20.369793	25.145341
340	N353	-20.36178	25.41663
341	N354	-25	24.950379
342	N355	-24.340705	24.790125
343	N356	-24.656876	25.41663
344	N357	-24.611122	25.74998
345	N358	-24.212842	25.41663
346	N359	-24.14822	25.74998
347	N360	-19.388989	25.74998
348	N361	-19.343124	26.08333
349	N362	-19.787158	26.08333
350	N363	-19.851819	25.74998
351	N364	-19.636158	24.798075
352	N365	-19	24.950379
353	N366	-19.343124	25.41663
354	N367	-19.90102	25.126972
355	N368	-19.787158	25.41663

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
356	N369	-20.672715	24.333
357	N370	-19.705226	24.333
358	N371	-23.623647	25.132246
359	N372	-23.63822	25.41663
360	N373	-24.088969	25.11367
361	N374	-24.294774	24.333
362	N375	-23.327285	24.333
363	N376	-23.558763	25.74998
364	N377	-23.63822	26.08333
365	N378	-24.212842	26.08333
366	N379	-20.441441	25.74998
367	N380	-12.034517	8.58333
368	N381	-12.131887	7.08333
369	N382	-10	7.08333
370	N383	-24.067577	6.58333
371	N384	-24.269911	5.33333
372	N385	-22	5.33333
373	N386	-12.034517	20.58333
374	N387	-12.131887	19.08333
375	N388	-10	19.08333
376	N389	-24.067577	18.58333
377	N390	-24.269911	17.33333
378	N391	-22	17.33333
379	N392	-35.732977	0.362321
380	N393	-36.411944	-0.24997
381	N394	-35.249343	-0.030817
382	N395	-31.445334	-0.58332
383	N396	-31.386883	-0.24997
384	N397	-31.902055	-0.24997
385	N398	-31.985919	-0.58332
386	N399	-37.554598	-0.58332
387	N400	-37.613117	-0.91667
388	N401	-37.097945	-0.91667
389	N402	-37.014058	-0.58332
390	N403	-31.544944	0.281775
391	N404	-31.566545	0.833
392	N405	-32.302452	0.833
393	N406	-32.20282	0.291867
394	N407	-37.451813	0.283025
395	N408	-37.613117	-0.24997
396	N409	-37.097945	-0.24997
397	N410	-36.772442	0.299019
398	N411	-34.758381	0.006824
399	N412	-34.326504	0.393768
400	N413	-34.5	0.833
401	N414	-32.688034	-0.58332
402	N415	-32.588056	-0.91667
403	N416	-31.902055	-0.91667
404	N417	-36.311853	-0.58332
405	N418	-33.072232	0.304341
406	N419	-32.588056	-0.24997
407	N420	-33.318167	12.78671
408	N421	-32.588056	13.41663
409	N422	-33.716425	13.148219
410	N423	-37.554666	13.74998

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
411	N424	-37.613117	13.41663
412	N425	-37.097945	13.41663
413	N426	-37.014081	13.74998
414	N427	-31.445402	13.74998
415	N428	-31.386883	14.08333
416	N429	-31.902055	14.08333
417	N430	-31.985942	13.74998
418	N431	-37.455015	12.884572
419	N432	-37.433353	12.333
420	N433	-36.697386	12.333
421	N434	-36.798322	12.874455
422	N435	-31.549026	12.883052
423	N436	-31.386883	13.41663
424	N437	-31.902055	13.41663
425	N438	-32.234008	12.865151
426	N439	-34.260885	13.183102
427	N440	-34.740977	12.771251
428	N441	-34.5	12.333
429	N442	-36.311966	13.74998
430	N443	-36.411944	14.08333
431	N444	-37.097945	14.08333
432	N445	-32.688147	13.74998
433	N446	-35.936307	12.862181
434	N447	-36.411944	13.41663
435	N448	4.131887	5.08333
436	N449	6	6.58333
437	N450	4.131887	25.08333
438	N451	6	26.58333
439	N452	2	-0.91667
440	N453	2.894608	-0.91667
441	N454	2.827916	-0.58332
442	N455	1.105392	-0.91667
443	N456	2	32.333
444	N457	-10	-0.91667
445	N458	-9.105392	-0.91667
446	N459	-9.172084	-0.58332
447	N460	-10.894608	-0.91667
448	N461	-22	-0.91667
449	N462	-21.105392	-0.91667
450	N463	-21.172084	-0.58332
451	N464	-22.894608	-0.91667
452	N465	-10	28.333
453	N466	-22	24.333
454	N467	-7.868113	7.08333
455	N468	-6	8.58333
456	N469	-19.730089	5.33333
457	N470	-18	6.58333
458	N471	-7.868113	19.08333
459	N472	-6	20.58333
460	N473	-19.730089	17.33333
461	N474	-18	18.58333
462	N475	-34.5	-0.91667
463	N476	-33.497623	-0.91667
464	N477	-33.545105	-0.58332
465	N478	-33.497623	-0.24997

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
466	N479	-35.502377	-0.91667
467	N480	-34.5	14.08333
468	N481	-35.502377	14.08333
469	N482	-35.454895	13.74998
470	N483	-35.502377	13.41663
471	N484	-33.497623	14.08333
472	N485	-0.131887	8.08333
473	N486	-2	6.58333
474	N487	-0.131887	28.08333
475	N488	-2	26.58333
476	N489	2	0.8333
477	N490	4.656876	-0.91667
478	N491	5	-0.58332
479	N492	-1	-0.58332
480	N493	0.36178	-0.91667
481	N494	2	34.08333
482	N495	1.105392	34.08333
483	N496	1.172084	33.74998
484	N497	2.894608	34.08333
485	N498	-0.656876	34.08333
486	N499	-1	33.74998
487	N500	5	33.74998
488	N501	3.63822	34.08333
489	N502	-10	0.8333
490	N503	-7.343124	-0.91667
491	N504	-7	-0.58332
492	N505	-13	-0.58332
493	N506	-11.63822	-0.91667
494	N507	-22	0.8333
495	N508	-19.343124	-0.91667
496	N509	-19	-0.58332
497	N510	-25	-0.58332
498	N511	-23.63822	-0.91667
499	N512	-10	30.08333
500	N513	-10.894608	30.08333
501	N514	-10.827916	29.74998
502	N515	-9.105392	30.08333
503	N516	-12.656876	30.08333
504	N517	-13	29.74998
505	N518	-7	29.74998
506	N519	-8.36178	30.08333
507	N520	-22	26.08333
508	N521	-22.894608	26.08333
509	N522	-22.827916	25.74998
510	N523	-21.105392	26.08333
511	N524	-24.656876	26.08333
512	N525	-25	25.74998
513	N526	-19	25.74998
514	N527	-20.36178	26.08333
515	N528	-12.131887	10.08333
516	N529	-14	8.58333
517	N530	-24.269911	7.83333
518	N531	-26	6.58333
519	N532	-12.131887	22.08333
520	N533	-14	20.58333

Node Coordinate (Continued)

	Label	Z [ft]	X [ft]
521	N534	-24.269911	19.83333
522	N535	-26	18.58333
523	N536	-35.74165	0.833
524	N537	-36.697548	0.833
525	N538	-31.386883	-0.91667
526	N539	-31	-0.58332
527	N540	-38	-0.58332
528	N541	-31	0.21609
529	N542	-37.433455	0.833
530	N543	-38	0.21609
531	N544	-36.411944	-0.91667
532	N545	-33.25835	0.833
533	N546	-33.258494	12.333
534	N547	-32.302614	12.333
535	N548	-37.613117	14.08333
536	N549	-38	13.74998
537	N550	-31	13.74998
538	N551	-38	12.950379
539	N552	-31.566647	12.333
540	N553	-31	12.950379
541	N554	-32.588056	14.08333
542	N555	-35.741506	12.333

Slab

	Label	Thickness [in]	Material	Local Axis Angle [deg]	Analysis Offset [in]	Passive Pressure [ksf]	Soil Overburden [ksf]	Icr Factor
1	S1	21	Conc4000NW	0	0	0.257	0	0.25
2	S2	21	Conc4000NW	0	0	0.257	0	0.25
3	S3	25.5	Conc4000NW	0	0	0.096	0	0.25
4	S4	25.5	Conc4000NW	0	0	0.096	0	0.25
5	S5	29.5	Conc4000NW	0	0	0.11	0	0.25
6	S6	29.5	Conc4000NW	0	0	0.11	0	0.25
7	S7	29.5	Conc4000NW	0	0	0.11	0	0.25
8	S8	29.5	Conc4000NW	0	0	0.11	0	0.25
9	S9	26.25	Conc4000NW	0	0	0.321	0	0.25
10	S10	19.25	Conc4000NW	0	0	0.235	0	0.25
11	S11	26.25	Conc4000NW	0	0	0.321	0	0.25
12	S12	19.25	Conc4000NW	0	0	0.235	0	0.25
13	S13	27.5	Conc3000NW	0	0	0.103	0	0.25
14	S14	27.5	Conc3000NW	0	0	0.103	0	0.25

Design Strips

	Label	Rebar Angle from Plan Horizontal (deg)	No. of Design Cuts	Design Rule
1	DS1	0	50	Typical
2	DS2	0	50	Typical
3	DS3	90	50	Typical
4	DS4	90	50	Typical
5	DS5	0	50	Typical
6	DS6	0	50	Typical
7	DS7	0	50	Typical
8	DS8	0	50	Typical
9	DS9	90	50	Typical
10	DS10	90	50	Typical
11	DS11	90	50	Typical

Design Strips (Continued)

	Label	Rebar Angle from Plan Horizontal (deg)	No. of Design Cuts	Design Rule
12	DS12	90	50	Typical

Load Category

	Category	Node Loads	Area Loads
1	DL	110	14
2	LL	128	
3	WL	170	
4	SL	83	
5	OL1	104	

Nodal Loads (Cat 1: DL)

	Node Label	Direction	Magnitude [k, k-ft]
1	R3D_N1	X	0.012
2	R3D_N1	Y	0.003
3	R3D_N1	MX	0.001
4	R3D_N3	X	0.012
5	R3D_N3	Y	0.003
6	R3D_N3	MX	-0.001
7	R3D_N4	Y	0.003
8	R3D_N4	MX	0.001
9	R3D_N6	Y	0.003
10	R3D_N6	MX	-0.001
11	R3D_N27	X	0.02
12	R3D_N27	Y	0.075
13	R3D_N27	MX	0.000225
14	R3D_N28	X	0.02
15	R3D_N28	Y	0.075
16	R3D_N28	MX	-0.000227
17	R3D_N29	Y	0.075
18	R3D_N29	MX	0.000185
19	R3D_N30	Y	0.075
20	R3D_N30	MX	-0.000187
21	R3D_N36	X	-0.04
22	R3D_N36	Y	0.025
23	R3D_N37	Y	0.026
24	R3D_N48	X	0.013
25	R3D_N48	Y	0.053
26	R3D_N48	MX	0.00032
27	R3D_N49	X	0.013
28	R3D_N49	Y	0.053
29	R3D_N49	MX	-0.000321
30	R3D_N50	Y	0.053
31	R3D_N50	MX	0.000323
32	R3D_N51	Y	0.053
33	R3D_N51	MX	-0.000319
34	R3D_N57	X	-0.024
35	R3D_N57	Y	0.005
36	R3D_N58	Y	0.006
37	R3D_N69	X	0.037
38	R3D_N69	Y	0.134
39	R3D_N70	X	0.037
40	R3D_N70	Y	0.134
41	R3D_N71	Y	0.133

Nodal Loads (Cat 1: DL) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
42	R3D_N72	Y	0.133
43	R3D_N73	X	-0.024
44	R3D_N73	Y	0.075
45	R3D_N73	MX	0.000646
46	R3D_N74	Y	0.075
47	R3D_N74	Z	-0.002
48	R3D_N74	MX	0.00031
49	R3D_N78	X	-0.024
50	R3D_N78	Y	0.075
51	R3D_N78	MX	-0.000646
52	R3D_N79	Y	0.075
53	R3D_N79	Z	0.002
54	R3D_N79	MX	-0.00031
55	R3D_N86	X	-0.023
56	R3D_N86	Y	-0.036
57	R3D_N96	Y	-0.037
58	R3D_N63	X	-0.001
59	R3D_N63	Y	0.559
60	R3D_N63	Z	-0.028
61	R3D_N63	MX	0.004
62	R3D_N63	MZ	0.006
63	R3D_N67	X	-0.001
64	R3D_N67	Y	0.559
65	R3D_N67	Z	0.028
66	R3D_N67	MX	-0.004
67	R3D_N67	MZ	0.005
68	R3D_N90	Y	0.559
69	R3D_N90	Z	-0.028
70	R3D_N90	MX	0.004
71	R3D_N90	MZ	-0.003
72	R3D_N91	Y	0.559
73	R3D_N91	Z	0.028
74	R3D_N91	MX	-0.004
75	R3D_N91	MZ	-0.004
76	R3D_N177	Y	0.379
77	R3D_N177	Z	-0.032
78	R3D_N177	MX	0.000622
79	R3D_N177	MZ	0.000447
80	R3D_N179	Y	0.379
81	R3D_N179	Z	0.032
82	R3D_N179	MX	-0.000631
83	R3D_N179	MZ	0.00041
84	R3D_N187	Y	0.366
85	R3D_N187	Z	-0.031
86	R3D_N187	MX	0.001
87	R3D_N187	MZ	0.002
88	R3D_N197	Y	0.366
89	R3D_N197	Z	0.031
90	R3D_N197	MX	-0.001
91	R3D_N197	MZ	0.002
92	R3D_N235	X	-0.025
93	R3D_N235	Y	0.063
94	R3D_N236	Y	0.064
95	R3D_N276	Y	0.322
96	R3D_N276	Z	-0.018

Nodal Loads (Cat 1: DL) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
97	R3D_N276	MX	0.002
98	R3D_N276	MZ	0.003
99	R3D_N321	Y	0.322
100	R3D_N321	Z	0.018
101	R3D_N321	MX	-0.002
102	R3D_N321	MZ	0.003
103	R3D_N328	Y	0.322
104	R3D_N328	Z	-0.018
105	R3D_N328	MX	0.002
106	R3D_N328	MZ	-0.000699
107	R3D_N332	Y	0.322
108	R3D_N332	Z	0.018
109	R3D_N332	MX	-0.002
110	R3D_N332	MZ	-0.001

Nodal Loads (Cat 2: LL)

	Node Label	Direction	Magnitude [k, k-ft]
1	R3D_N1	X	-0.265
2	R3D_N1	Y	-0.156
3	R3D_N1	MX	0.006
4	R3D_N3	X	-0.265
5	R3D_N3	Y	-0.155
6	R3D_N3	MX	-0.007
7	R3D_N4	Y	-0.156
8	R3D_N4	MX	0.006
9	R3D_N6	Y	-0.156
10	R3D_N6	MX	-0.006
11	R3D_N27	X	-0.209
12	R3D_N27	Y	0.307
13	R3D_N27	MX	0.001
14	R3D_N28	X	-0.209
15	R3D_N28	Y	0.307
16	R3D_N28	MX	-0.001
17	R3D_N29	Y	0.309
18	R3D_N29	MX	0.001
19	R3D_N30	Y	0.309
20	R3D_N30	MX	-0.001
21	R3D_N36	X	0.414
22	R3D_N36	Y	0.504
23	R3D_N37	Y	0.502
24	R3D_N48	X	-0.169
25	R3D_N48	Y	0.162
26	R3D_N48	MX	0.002
27	R3D_N49	X	-0.169
28	R3D_N49	Y	0.162
29	R3D_N49	MX	-0.002
30	R3D_N50	Y	0.163
31	R3D_N50	MX	0.002
32	R3D_N51	Y	0.163
33	R3D_N51	MX	-0.002
34	R3D_N57	X	0.324
35	R3D_N57	Y	0.35
36	R3D_N58	Y	0.348
37	R3D_N69	X	-0.109
38	R3D_N69	Y	0.5

Nodal Loads (Cat 2: LL) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
39	R3D_N70	X	-0.11
40	R3D_N70	Y	0.5
41	R3D_N71	Y	0.502
42	R3D_N72	Y	0.502
43	R3D_N73	X	0.072
44	R3D_N73	Y	0.668
45	R3D_N73	Z	0.002
46	R3D_N73	MX	-0.002
47	R3D_N74	Y	0.667
48	R3D_N74	Z	0.007
49	R3D_N74	MX	-0.000921
50	R3D_N78	X	0.072
51	R3D_N78	Y	0.668
52	R3D_N78	Z	-0.002
53	R3D_N78	MX	0.002
54	R3D_N79	Y	0.667
55	R3D_N79	Z	-0.007
56	R3D_N79	MX	0.000921
57	R3D_N86	X	0.508
58	R3D_N86	Y	0.068
59	R3D_N96	Y	0.07
60	R3D_N63	X	-0.003
61	R3D_N63	Y	3.135
62	R3D_N63	Z	-0.151
63	R3D_N63	MX	0.019
64	R3D_N63	MY	-0.000424
65	R3D_N63	MZ	0.013
66	R3D_N67	X	-0.003
67	R3D_N67	Y	3.134
68	R3D_N67	Z	0.151
69	R3D_N67	MX	-0.02
70	R3D_N67	MY	0.00052
71	R3D_N67	MZ	0.01
72	R3D_N90	X	0.015
73	R3D_N90	Y	3.135
74	R3D_N90	Z	-0.151
75	R3D_N90	MX	0.019
76	R3D_N90	MY	0.000483
77	R3D_N90	MZ	-0.051
78	R3D_N91	X	0.014
79	R3D_N91	Y	3.133
80	R3D_N91	Z	0.151
81	R3D_N91	MX	-0.02
82	R3D_N91	MY	-0.000431
83	R3D_N91	MZ	-0.054
84	R3D_N177	X	0.002
85	R3D_N177	Y	2.096
86	R3D_N177	Z	-0.18
87	R3D_N177	MX	0.003
88	R3D_N177	MZ	-0.013
89	R3D_N179	X	0.001
90	R3D_N179	Y	2.095
91	R3D_N179	Z	0.18
92	R3D_N179	MX	-0.003
93	R3D_N179	MZ	-0.014

Nodal Loads (Cat 2: LL) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
94	R3D_N187	X	0.001
95	R3D_N187	Y	2.096
96	R3D_N187	Z	-0.178
97	R3D_N187	MX	0.006
98	R3D_N187	MY	0.000107
99	R3D_N187	MZ	-0.007
100	R3D_N197	Y	2.096
101	R3D_N197	Z	0.178
102	R3D_N197	MX	-0.006
103	R3D_N197	MZ	-0.008
104	R3D_N235	X	0.074
105	R3D_N235	Y	0.702
106	R3D_N236	Y	0.7
107	R3D_N276	Y	1.957
108	R3D_N276	Z	-0.101
109	R3D_N276	MX	0.011
110	R3D_N276	MY	-0.000361
111	R3D_N276	MZ	0.003
112	R3D_N321	Y	1.958
113	R3D_N321	Z	0.101
114	R3D_N321	MX	-0.011
115	R3D_N321	MY	0.000409
116	R3D_N321	MZ	0.001
117	R3D_N328	X	0.008
118	R3D_N328	Y	1.957
119	R3D_N328	Z	-0.101
120	R3D_N328	MX	0.011
121	R3D_N328	MY	0.000405
122	R3D_N328	MZ	-0.029
123	R3D_N332	X	0.008
124	R3D_N332	Y	1.957
125	R3D_N332	Z	0.101
126	R3D_N332	MX	-0.011
127	R3D_N332	MY	-0.000345
128	R3D_N332	MZ	-0.031

Nodal Loads (Cat 4: WL)

	Node Label	Direction	Magnitude [k, k-ft]
1	R3D_N1	X	0.055
2	R3D_N1	Y	0.019
3	R3D_N1	Z	0.048
4	R3D_N1	MX	-0.179
5	R3D_N3	X	0.063
6	R3D_N3	Y	0.05
7	R3D_N3	Z	-0.221
8	R3D_N3	MX	-2.274
9	R3D_N4	Y	0.02
10	R3D_N4	Z	0.048
11	R3D_N4	MX	-0.179
12	R3D_N6	Y	0.05
13	R3D_N6	Z	-0.221
14	R3D_N6	MX	-2.273
15	R3D_N27	X	0.034
16	R3D_N27	Y	-0.007
17	R3D_N27	Z	-0.07

Nodal Loads (Cat 4: WL) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
18	R3D_N27	MX	-0.055
19	R3D_N28	X	0.06
20	R3D_N28	Y	-0.13
21	R3D_N28	Z	-0.341
22	R3D_N28	MX	-1.811
23	R3D_N29	Y	-0.007
24	R3D_N29	Z	-0.085
25	R3D_N29	MX	-0.062
26	R3D_N30	Y	-0.13
27	R3D_N30	Z	-0.358
28	R3D_N30	MX	-1.889
29	R3D_N36	X	-0.092
30	R3D_N36	Y	-0.112
31	R3D_N36	Z	-0.088
32	R3D_N36	MX	0.047
33	R3D_N37	Y	-0.112
34	R3D_N37	Z	-0.113
35	R3D_N37	MX	0.054
36	R3D_N48	X	0.037
37	R3D_N48	Y	0.001
38	R3D_N48	Z	-0.029
39	R3D_N48	MX	-0.045
40	R3D_N49	X	0.038
41	R3D_N49	Y	-0.074
42	R3D_N49	Z	-0.293
43	R3D_N49	MX	-1.331
44	R3D_N50	Y	0.001
45	R3D_N50	Z	-0.029
46	R3D_N50	MX	-0.045
47	R3D_N51	Y	-0.074
48	R3D_N51	Z	-0.293
49	R3D_N51	MX	-1.33
50	R3D_N57	X	-0.072
51	R3D_N57	Y	-0.078
52	R3D_N57	Z	-0.031
53	R3D_N57	MX	0.04
54	R3D_N58	Y	-0.077
55	R3D_N58	Z	-0.031
56	R3D_N58	MX	0.04
57	R3D_N69	X	-0.008
58	R3D_N69	Y	0.015
59	R3D_N69	Z	-0.103
60	R3D_N69	MX	0.033
61	R3D_N70	X	0.056
62	R3D_N70	Y	-0.238
63	R3D_N70	Z	-0.338
64	R3D_N70	MX	-2.011
65	R3D_N71	Y	0.013
66	R3D_N71	Z	-0.103
67	R3D_N71	MX	0.033
68	R3D_N72	Y	-0.236
69	R3D_N72	Z	-0.337
70	R3D_N72	MX	-2.011
71	R3D_N73	X	-0.054
72	R3D_N73	Y	-0.232

Nodal Loads (Cat 4: WL) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
73	R3D_N73	Z	-0.162
74	R3D_N73	MX	0.052
75	R3D_N74	Y	-0.238
76	R3D_N74	Z	-0.162
77	R3D_N74	MX	0.051
78	R3D_N78	X	0.022
79	R3D_N78	Y	-0.064
80	R3D_N78	Z	-0.16
81	R3D_N78	MX	0.05
82	R3D_N79	Y	-0.058
83	R3D_N79	Z	-0.158
84	R3D_N79	MX	0.05
85	R3D_N86	X	-0.113
86	R3D_N86	Y	-0.015
87	R3D_N86	Z	0.046
88	R3D_N86	MX	0.039
89	R3D_N96	Y	-0.015
90	R3D_N96	Z	0.046
91	R3D_N96	MX	0.039
92	R3D_N63	X	-0.074
93	R3D_N63	Y	2.476
94	R3D_N63	Z	-1.416
95	R3D_N63	MX	-0.509
96	R3D_N63	MY	0.238
97	R3D_N63	MZ	0.229
98	R3D_N67	X	0.075
99	R3D_N67	Y	-3.87
100	R3D_N67	Z	-0.778
101	R3D_N67	MX	0.918
102	R3D_N67	MY	0.283
103	R3D_N67	MZ	-0.234
104	R3D_N90	X	0.073
105	R3D_N90	Y	2.476
106	R3D_N90	Z	-1.406
107	R3D_N90	MX	-0.511
108	R3D_N90	MY	-0.237
109	R3D_N90	MZ	-0.212
110	R3D_N91	X	-0.079
111	R3D_N91	Y	-3.869
112	R3D_N91	Z	-0.787
113	R3D_N91	MX	0.92
114	R3D_N91	MY	-0.283
115	R3D_N91	MZ	0.235
116	R3D_N177	X	0.006
117	R3D_N177	Y	3.656
118	R3D_N177	Z	-0.867
119	R3D_N177	MX	-0.315
120	R3D_N177	MY	-0.042
121	R3D_N177	MZ	-0.035
122	R3D_N179	X	-0.007
123	R3D_N179	Y	-4.587
124	R3D_N179	Z	-0.567
125	R3D_N179	MX	0.937
126	R3D_N179	MY	-0.055
127	R3D_N179	MZ	0.041

Nodal Loads (Cat 4: WL) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
128	R3D_N187	X	-0.014
129	R3D_N187	Y	3.287
130	R3D_N187	Z	-1.003
131	R3D_N187	MX	-0.333
132	R3D_N187	MY	0.064
133	R3D_N187	MZ	0.069
134	R3D_N197	X	0.013
135	R3D_N197	Y	-4.218
136	R3D_N197	Z	-0.596
137	R3D_N197	MX	0.995
138	R3D_N197	MY	0.081
139	R3D_N197	MZ	-0.066
140	R3D_N235	X	-0.017
141	R3D_N235	Y	-0.156
142	R3D_N235	Z	-0.176
143	R3D_N235	MX	0.055
144	R3D_N236	Y	-0.156
145	R3D_N236	Z	-0.171
146	R3D_N236	MX	0.055
147	R3D_N276	X	-0.028
148	R3D_N276	Y	1.841
149	R3D_N276	Z	-0.951
150	R3D_N276	MX	-0.321
151	R3D_N276	MY	0.096
152	R3D_N276	MZ	0.091
153	R3D_N321	X	0.028
154	R3D_N321	Y	-2.711
155	R3D_N321	Z	-0.462
156	R3D_N321	MX	0.796
157	R3D_N321	MY	0.112
158	R3D_N321	MZ	-0.092
159	R3D_N328	X	0.027
160	R3D_N328	Y	1.841
161	R3D_N328	Z	-0.948
162	R3D_N328	MX	-0.321
163	R3D_N328	MY	-0.096
164	R3D_N328	MZ	-0.079
165	R3D_N332	X	-0.031
166	R3D_N332	Y	-2.711
167	R3D_N332	Z	-0.466
168	R3D_N332	MX	0.797
169	R3D_N332	MY	-0.112
170	R3D_N332	MZ	0.093

Nodal Loads (Cat 5: SL)

	Node Label	Direction	Magnitude [k, k-ft]
1	R3D_N1	MX	-0.000805
2	R3D_N3	MX	-0.000807
3	R3D_N4	MX	-0.000808
4	R3D_N6	MX	-0.000805
5	R3D_N27	X	-0.001
6	R3D_N27	MX	0.001
7	R3D_N28	X	0.001
8	R3D_N28	MX	0.001
9	R3D_N29	Z	-0.002

Nodal Loads (Cat 5: SL) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
10	R3D_N29	MX	0.004
11	R3D_N30	Z	-0.002
12	R3D_N30	MX	0.004
13	R3D_N36	Z	-0.001
14	R3D_N36	MX	-0.000381
15	R3D_N37	Z	-0.004
16	R3D_N48	MX	-0.000348
17	R3D_N49	MX	-0.000349
18	R3D_N50	MX	-0.000349
19	R3D_N51	MX	-0.000348
20	R3D_N57	MX	-0.0001
21	R3D_N58	MX	-9.9e-5
22	R3D_N86	MX	9.4e-5
23	R3D_N96	MX	9.5e-5
24	R3D_N63	Y	0.051
25	R3D_N63	Z	-0.073
26	R3D_N63	MX	-0.026
27	R3D_N63	MY	0.001
28	R3D_N63	MZ	0.001
29	R3D_N67	Y	-0.051
30	R3D_N67	Z	-0.072
31	R3D_N67	MX	-0.026
32	R3D_N67	MY	0.001
33	R3D_N67	MZ	-0.001
34	R3D_N90	Y	0.051
35	R3D_N90	Z	-0.072
36	R3D_N90	MX	-0.026
37	R3D_N90	MY	-0.001
38	R3D_N90	MZ	-0.001
39	R3D_N91	Y	-0.051
40	R3D_N91	Z	-0.073
41	R3D_N91	MX	-0.026
42	R3D_N91	MY	-0.001
43	R3D_N91	MZ	0.001
44	R3D_N177	Y	0.3
45	R3D_N177	Z	-0.172
46	R3D_N177	MX	-0.127
47	R3D_N177	MY	-0.002
48	R3D_N177	MZ	-0.002
49	R3D_N179	Y	-0.3
50	R3D_N179	Z	-0.172
51	R3D_N179	MX	-0.127
52	R3D_N179	MY	-0.002
53	R3D_N179	MZ	0.002
54	R3D_N187	Y	0.199
55	R3D_N187	Z	-0.14
56	R3D_N187	MX	-0.082
57	R3D_N187	MY	0.003
58	R3D_N187	MZ	0.004
59	R3D_N197	Y	-0.199
60	R3D_N197	Z	-0.14
61	R3D_N197	MX	-0.082
62	R3D_N197	MY	0.003
63	R3D_N197	MZ	-0.004
64	R3D_N276	Y	0.056

Nodal Loads (Cat 5: SL) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
65	R3D_N276	Z	-0.076
66	R3D_N276	MX	-0.028
67	R3D_N276	MY	0.001
68	R3D_N276	MZ	0.001
69	R3D_N321	Y	-0.056
70	R3D_N321	Z	-0.076
71	R3D_N321	MX	-0.028
72	R3D_N321	MY	0.001
73	R3D_N321	MZ	-0.001
74	R3D_N328	Y	0.056
75	R3D_N328	Z	-0.076
76	R3D_N328	MX	-0.028
77	R3D_N328	MY	-0.001
78	R3D_N328	MZ	-0.001
79	R3D_N332	Y	-0.056
80	R3D_N332	Z	-0.076
81	R3D_N332	MX	-0.028
82	R3D_N332	MY	-0.001
83	R3D_N332	MZ	0.001

Nodal Loads (Cat 72: OL1)

	Node Label	Direction	Magnitude [k, k-ft]
1	R3D_N1	X	-0.021
2	R3D_N1	Y	-0.012
3	R3D_N1	MX	0.0005
4	R3D_N3	X	-0.021
5	R3D_N3	Y	-0.012
6	R3D_N3	MX	-0.000508
7	R3D_N4	Y	-0.012
8	R3D_N4	MX	0.000503
9	R3D_N6	Y	-0.012
10	R3D_N6	MX	-0.000505
11	R3D_N27	X	-0.016
12	R3D_N27	Y	0.024
13	R3D_N27	MX	9.8e-5
14	R3D_N28	X	-0.016
15	R3D_N28	Y	0.024
16	R3D_N28	MX	-9.9e-5
17	R3D_N29	Y	0.024
18	R3D_N30	Y	0.024
19	R3D_N36	X	0.032
20	R3D_N36	Y	0.039
21	R3D_N37	Y	0.039
22	R3D_N48	X	-0.013
23	R3D_N48	Y	0.013
24	R3D_N48	MX	0.000138
25	R3D_N49	X	-0.013
26	R3D_N49	Y	0.013
27	R3D_N49	MX	-0.000138
28	R3D_N50	Y	0.013
29	R3D_N50	MX	0.000139
30	R3D_N51	Y	0.013
31	R3D_N51	MX	-0.000137
32	R3D_N57	X	0.025
33	R3D_N57	Y	0.027

Nodal Loads (Cat 72: OL1) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
34	R3D_N58	Y	0.027
35	R3D_N69	X	-0.008
36	R3D_N69	Y	0.039
37	R3D_N70	X	-0.009
38	R3D_N70	Y	0.039
39	R3D_N71	Y	0.039
40	R3D_N72	Y	0.039
41	R3D_N73	X	0.006
42	R3D_N73	Y	0.052
43	R3D_N73	MX	-0.000149
44	R3D_N74	Y	0.052
45	R3D_N78	X	0.006
46	R3D_N78	Y	0.052
47	R3D_N78	MX	0.000149
48	R3D_N79	Y	0.052
49	R3D_N86	X	0.04
50	R3D_N86	Y	0.005
51	R3D_N96	Y	0.005
52	R3D_N63	Y	0.244
53	R3D_N63	Z	-0.012
54	R3D_N63	MX	0.002
55	R3D_N63	MZ	0.000994
56	R3D_N67	Y	0.244
57	R3D_N67	Z	0.012
58	R3D_N67	MX	-0.002
59	R3D_N67	MZ	0.000784
60	R3D_N90	X	0.001
61	R3D_N90	Y	0.244
62	R3D_N90	Z	-0.012
63	R3D_N90	MX	0.002
64	R3D_N90	MZ	-0.004
65	R3D_N91	X	0.001
66	R3D_N91	Y	0.244
67	R3D_N91	Z	0.012
68	R3D_N91	MX	-0.002
69	R3D_N91	MZ	-0.004
70	R3D_N177	Y	0.163
71	R3D_N177	Z	-0.014
72	R3D_N177	MX	0.00026
73	R3D_N177	MZ	-0.001
74	R3D_N179	Y	0.163
75	R3D_N179	Z	0.014
76	R3D_N179	MX	-0.000264
77	R3D_N179	MZ	-0.001
78	R3D_N187	Y	0.163
79	R3D_N187	Z	-0.014
80	R3D_N187	MX	0.000459
81	R3D_N187	MZ	-0.00054
82	R3D_N197	Y	0.163
83	R3D_N197	Z	0.014
84	R3D_N197	MX	-0.000463
85	R3D_N197	MZ	-0.000585
86	R3D_N235	X	0.006
87	R3D_N235	Y	0.055
88	R3D_N236	Y	0.054

Nodal Loads (Cat 72: OL1) (Continued)

	Node Label	Direction	Magnitude [k, k-ft]
89	R3D_N276	Y	0.152
90	R3D_N276	Z	-0.008
91	R3D_N276	MX	0.000839
92	R3D_N276	MZ	0.00022
93	R3D_N321	Y	0.152
94	R3D_N321	Z	0.008
95	R3D_N321	MX	-0.000835
96	R3D_N321	MZ	9e-5
97	R3D_N328	Y	0.152
98	R3D_N328	Z	-0.008
99	R3D_N328	MX	0.000838
100	R3D_N328	MZ	-0.002
101	R3D_N332	Y	0.152
102	R3D_N332	Z	0.008
103	R3D_N332	MX	-0.000835
104	R3D_N332	MZ	-0.002

Area Load (Cat 1: DL)

	Label	Base Magnitude [ksf]	Peak Magnitude [ksf]
1	AL1	0	N/A
2	AL2	0	N/A
3	AL3	0	N/A
4	AL4	0	N/A
5	AL5	0	N/A
6	AL6	0	N/A
7	AL7	0	N/A
8	AL8	0	N/A
9	AL9	0	N/A
10	AL10	0	N/A
11	AL11	0	N/A
12	AL12	0	N/A
13	AL13	0	N/A
14	AL14	0	N/A

Load Combination

	Label	Solve	Service	SF	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor	Category	Factor
1	Strength Load Combinations															
2	SIV	Yes			DL	1.5	SL	1							OL1	1.5
3	SIVb	Yes			DL	0.9			SL	1					OL1	0.65
4	SI. 1.25DC + 1.75PL	Yes			DL	1.25	LL	1.75	SL	1					OL1	1.5
5	SIII. 1.25DC + 1.40WS	Yes			DL	1.25	WL	1.4	SL	1					OL1	1.5
6	SIIIb	Yes			DL	0.9	WL	1.4	SL	1					OL1	0.65
7	SV	Yes			DL	1.25	LL	1.35	SL	1	WL	0.4			OL1	1.25
8																
9	Service															
10	Service I	Yes	Yes	1.5	DL	1	LL	1	SL	1	WL	0.3	OL1	1		
11	Service II	Yes	Yes	1.5	DL	1	LL	1.3	SL	1			OL1	1		
12	Service IV	Yes	Yes	1.5	DL	1			SL	1	WL	0.7	OL1	1		

Slab Soil Pressures

	LC	Label	UC	Soil Pressure[ksf]	Allowable Bearing[ksf]	Node
1	10	S1	0.246	0.739	3	N48
2	10	S2	0.249	0.748	3	N52
3	10	S3	0.129	0.387	3	N44
4	10	S4	0.138	0.413	3	N56
5	10	S5	0.206	0.619	3	N65
6	10	S6	0.183	0.549	3	N71
7	10	S7	0.165	0.496	3	N76
8	10	S8	0.158	0.473	3	N82
9	10	S9	0.239	0.717	3	N89
10	10	S10	0.206	0.617	3	N93
11	10	S11	0.248	0.745	3	N97
12	10	S12	0.208	0.623	3	N101
13	10	S13	0.254	0.763	3	N105
14	10	S14	0.233	0.699	3	N109
15	11	S1	0.251	0.753	3	N48
16	11	S2	0.255	0.764	3	N52
17	11	S3	0.104	0.313	3	N489
18	11	S4	0.116	0.348	3	N456
19	11	S5	0.202	0.607	3	N283
20	11	S6	0.178	0.535	3	N507
21	11	S7	0.148	0.444	3	N77
22	11	S8	0.145	0.435	3	N375
23	11	S9	0.225	0.675	3	N89
24	11	S10	0.207	0.621	3	N93
25	11	S11	0.23	0.691	3	N97
26	11	S12	0.21	0.629	3	N101
27	11	S13	0.271	0.814	3	N545
28	11	S14	0.273	0.82	3	N480
29	12	S1	0.177	0.531	3	N48
30	12	S2	0.177	0.532	3	N52
31	12	S3	0.167	0.501	3	N44
32	12	S4	0.167	0.502	3	N56
33	12	S5	0.189	0.567	3	N65
34	12	S6	0.175	0.525	3	N71
35	12	S7	0.187	0.562	3	N76
36	12	S8	0.173	0.519	3	N82
37	12	S9	0.214	0.643	3	N89
38	12	S10	0.155	0.464	3	N93
39	12	S11	0.231	0.693	3	N97
40	12	S12	0.155	0.465	3	N101
41	12	S13	0.178	0.534	3	N105
42	12	S14	0.172	0.516	3	N106

Envelope Slab Soil Pressures

	Label	Max UC	Max LC	Soil Pressure[ksf]	Allowable Bearing[ksf]	Node
1	S1	0.251	11	0.753	3	N48
2	S2	0.255	11	0.764	3	N52
3	S3	0.167	12	0.501	3	N44
4	S4	0.167	12	0.502	3	N56
5	S5	0.206	10	0.619	3	N65
6	S6	0.183	10	0.549	3	N71
7	S7	0.187	12	0.562	3	N76
8	S8	0.173	12	0.519	3	N82
9	S9	0.239	10	0.717	3	N89

Envelope Slab Soil Pressures (Continued)

	Label	Max UC	Max LC	Soil Pressure[ksf]	Allowable Bearing[ksf]	Node
10	S10	0.207	11	0.621	3	N93
11	S11	0.248	10	0.745	3	N97
12	S12	0.21	11	0.629	3	N101
13	S13	0.271	11	0.814	3	N545
14	S14	0.273	11	0.82	3	N480

Strip Reinforcing

	Label	UC Top	LC	Top Bars	Gov Design Cut	UC Top	UC Bot	LC	Bot Bars/Mid Bars	Gov Design Cut	UC Bot	UC Shear	LC	Gov Design Cut	UC Shear
1	DS1	0.014	5	#5@6in	DS1-X37	0.027	6	#5@6in	DS1-X13	0.071	6	DS1-X12
2	DS2	0.013	5	#5@6in	DS2-X37	0.038	6	#5@6in	DS2-X13	0.101	6	DS2-X12
3	DS3	0	6	#5@6in	DS3-X26	0.004	4	#5@6in	DS3-X26	0.015	4	DS3-X50
4	DS4	0	6	#5@6in	DS4-X26	0.004	4	#5@6in	DS4-X26	0.015	4	DS4-X50
5	DS5	0.018	5	#5@7in	DS5-X37	0.039	6	#5@7in	DS5-X13	0.087	6	DS5-X12
6	DS6	0.018	5	#5@7in	DS6-X37	0.039	6	#5@7in	DS6-X13	0.087	6	DS6-X12
7	DS7	0.025	5	#5@8in	DS7-X38	0.034	6	#5@8in	DS7-X12	0.069	6	DS7-X11
8	DS8	0.025	5	#5@8in	DS8-X38	0.034	6	#5@8in	DS8-X12	0.069	6	DS8-X11
9	DS9	0	6	#5@8in	DS9-X26	0.011	4	#5@8in	DS9-X25	0.028	4	DS9-X25
10	DS10	0	6	#5@8in	DS10-X26	0.011	4	#5@8in	DS10-X26	0.029	4	DS10-X38
11	DS11	0	6	#5@8in	DS11-X26	0.006	4	#5@8in	DS11-X25	0.018	4	DS11-X25
12	DS12	0	6	#5@8in	DS12-X26	0.007	4	#5@8in	DS12-X26	0.019	4	DS12-X45

Slab Stability - Overturning

	LC	Slab	Angle[deg]	Mo-xx[k-ft]	Ms-xx[k-ft]	Mo-zz[k-ft]	Ms-zz[k-ft]	Ms-xx/Mo-xx	Ms-zz/Mo-zz
1	10	S1	0	7.017	55.856	0.694	22.209	7.96	9.99+
2	10	S2	0	7.017	55.854	0.707	22.434	7.96	9.99+
3	10	S3	0	1.523	7.44	0.291	2.582	4.886	8.863
4	10	S4	0	1.52	7.442	0.304	1.788	4.896	5.881
5	10	S5	0	1.211	12.036	0.063	2.863	9.937	9.99+
6	10	S6	0	0.842	10.409	0.04	2.435	9.99+	9.99+
7	10	S7	0	1.29	12.043	0.087	3.314	9.338	9.99+
8	10	S8	0	0.842	10.412	0.052	2.68	9.99+	9.99+
9	10	S9	0	8.043	51.451	0.467	20.184	6.397	9.99+
10	10	S10	0	4.839	38.063	0.369	12.695	7.865	9.99+
11	10	S11	0	9.022	51.543	0.468	20.243	5.713	9.99+
12	10	S12	0	4.839	38.062	0.375	12.795	7.865	9.99+
13	10	S13	0	2.154	23.635	0.169	5.17	9.99+	9.99+
14	10	S14	0	2.148	23.638	0.236	6.425	9.99+	9.99+
15	11	S1	0	0.509	63.378	0	22.203	9.99+	9.99+
16	11	S2	0	0.509	63.375	0	21.919	9.99+	9.99+
17	11	S3	0	1.004	7.441	0.372	2.564	7.409	6.884
18	11	S4	0	1	7.443	0.389	1.769	7.439	4.552
19	11	S5	0	0.001	13.043	0	3.146	9.99+	9.99+
20	11	S6	0	0.001	11.016	0	2.614	9.99+	9.99+
21	11	S7	0	0.012	13.051	0	3.909	9.99+	9.99+
22	11	S8	0	0.001	11.019	0	3.513	9.99+	9.99+
23	11	S9	0	1.571	56.481	0	20.077	9.99+	9.99+
24	11	S10	0	0.526	42.761	0	12.367	9.99+	9.99+
25	11	S11	0	2.204	56.571	0	20.081	9.99+	9.99+
26	11	S12	0	0.526	42.76	0	12.239	9.99+	9.99+
27	11	S13	0	0	26.825	0	5.93	9.99+	9.99+
28	11	S14	0	0	26.827	0	5.929	9.99+	9.99+
29	12	S1	0	15.696	30.784	1.62	11.795	1.961	7.279
30	12	S2	0	15.694	30.784	1.649	11.831	1.962	7.173

Slab Stability - Overturning (Continued)

	LC	Slab	Angle[deg]	Mo-xx[k-ft]	Ms-xx[k-ft]	Mo-zz[k-ft]	Ms-zz[k-ft]	Ms-xx/Mo-xx	Ms-zz/Mo-zz
31	12	S3	0	1.779	7.44	0.021	2.606	4.181	9.99+
32	12	S4	0	1.779	7.442	0.022	1.813	4.182	9.99+
33	12	S5	0	2.825	8.68	0.147	1.918	3.073	9.99+
34	12	S6	0	1.964	8.385	0.093	1.837	4.27	9.99+
35	12	S7	0	2.993	8.684	0.203	2.007	2.901	9.878
36	12	S8	0	1.964	8.387	0.122	1.892	4.271	9.99+
37	12	S9	0	16.672	34.685	1.09	13.181	2.08	9.99+
38	12	S10	0	10.591	22.403	0.862	7.153	2.115	8.297
39	12	S11	0	18.112	34.783	1.091	13.226	1.92	9.99+
40	12	S12	0	10.59	22.403	0.876	7.165	2.115	8.18
41	12	S13	0	5.027	13.001	0.394	2.64	2.586	6.704
42	12	S14	0	5.013	13.006	0.551	2.881	2.594	5.225

Slab Stability - Sliding

	LC	Slab	Angle[deg]	Va-xx[k]	Vr-xx[k]	Va-zz[k]	Vr-zz[k]	SR-xx	SR-zz
1	10	S1	0	0.009	7.662	0.803	5.413	9.99+	6.739
2	10	S2	0	0.029	7.662	0.803	5.413	9.99+	6.741
3	10	S3	0	0.022	1.894	0.038	1.027	9.99+	9.99+
4	10	S4	0	0	1.895	0.038	1.028	9.99+	9.99+
5	10	S5	0	0.005	2.804	0.151	1.654	9.99+	9.99+
6	10	S6	0	0.014	2.65	0.106	1.501	9.99+	9.99+
7	10	S7	0	0	2.804	0.175	1.655	9.99+	9.434
8	10	S8	0	0	2.65	0.106	1.501	9.99+	9.99+
9	10	S9	0	0.001	9.393	0.76	5.882	9.99+	7.742
10	10	S10	0	0	5.792	0.576	3.719	9.99+	6.455
11	10	S11	0	0.003	9.4	0.774	5.889	9.99+	7.611
12	10	S12	0	0.014	5.792	0.576	3.719	9.99+	6.455
13	10	S13	0	0	3.617	0.282	2.378	9.99+	8.433
14	10	S14	0	0	3.618	0.279	2.379	9.99+	8.523
15	11	S1	0	0.011	8.352	0.145	6.103	9.99+	9.99+
16	11	S2	0	0.04	8.351	0.145	6.103	9.99+	9.99+
17	11	S3	0	0.03	1.868	0	1.001	9.99+	9.99+
18	11	S4	0	0	1.868	0	1.001	9.99+	9.99+
19	11	S5	0	0.006	2.927	0.001	1.777	9.99+	9.99+
20	11	S6	0	0.019	2.724	0	1.575	9.99+	9.99+
21	11	S7	0	0	2.928	0.009	1.778	9.99+	9.99+
22	11	S8	0	0	2.724	0	1.575	9.99+	9.99+
23	11	S9	0	0.002	9.854	0.28	6.343	9.99+	9.99+
24	11	S10	0	0	6.223	0.152	4.149	9.99+	9.99+
25	11	S11	0	0.004	9.861	0.344	6.35	9.99+	9.99+
26	11	S12	0	0.02	6.223	0.152	4.149	9.99+	9.99+
27	11	S13	0	0	3.952	0	2.712	9.99+	9.99+
28	11	S14	0	0	3.952	0	2.713	9.99+	9.99+
29	12	S1	0	0.002	5.614	1.681	3.366	9.99+	2.002
30	12	S2	0	0.002	5.614	1.681	3.366	9.99+	2.003
31	12	S3	0	0.003	1.974	0.088	1.107	9.99+	9.99+
32	12	S4	0	0	1.974	0.088	1.107	9.99+	9.99+
33	12	S5	0	0.001	2.438	0.35	1.289	9.99+	3.682
34	12	S6	0	0.002	2.43	0.247	1.28	9.99+	5.175
35	12	S7	0	0	2.439	0.398	1.289	9.99+	3.24
36	12	S8	0	0	2.43	0.247	1.281	9.99+	5.176
37	12	S9	0	0	8.023	1.399	4.512	9.99+	3.225
38	12	S10	0	0	4.513	1.142	2.44	9.99+	2.137
39	12	S11	0	0	8.031	1.347	4.52	9.99+	3.355
40	12	S12	0	0.002	4.513	1.141	2.44	9.99+	2.138

Slab Stability - Sliding (Continued)

	LC	Slab	Angle[deg]	Va-xx[k]	Vr-xx[k]	Va-zz[k]	Vr-zz[k]	SR-xx	SR-zz
41	12	S13	0	0	2.625	0.658	1.386	9.99+	2.106
42	12	S14	0	0	2.625	0.651	1.386	9.99+	2.129

JOB NO.: #NAME?

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES **SUBJECT:** Calculations

DESIGN APPROACH: **LRFD**

ALUM. PLATE IN BENDING

Location: Base Clip angle

Plate depth:	0.5	in	
Plate width:	4.375	in	This calc module is only set up to perform ASD code chec
Section modulus, S:	0.182	in^3	
Moment arm:	4.375	in	
Yield strength, F_{ty} or F_{cy}:	35	ksi	(enter lowest yield strength)
Tensile ultimate strength, F_{tu}:	42	ksi	
Tension coefficient, k_t:	1		
Yielding safety factor, Ω_b:	1.65		
Rupture safety factor, Ω_b:	1.95		
Moment capacity:	419	ft-lbs	
Load:	5576	lbs	
Moment:	508	ft-lbs	
Check Plate:	121.3%		
Result:	**Selected plate is inadequate.**		
Note:			

BOLTED TENSION CONNECTION

Location: Post to Beam

Bolt Grade:	A307		
Bolt Diameter:	0.625	in	
Number of Bolts:	1		
Bolt Capacity:	10354	lbs	(AISC Equation J3-1)
Tension Load:	1893	lbs	
Check Bolt:	18.3%		
Result:	**Select (1) 0.625 in. dia. A307 bolt.**		
Note:			

JOB NO.: #NAME?

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES **SUBJECT:** Calculations

ALUM. PLATE IN BENDING Location: End plate for cross angle

Plate depth:	0.5	in	
Plate width:	2.5	in	This calc module is only set up to perform ASD code chec
Section modulus, S:	0.104	in^3	
Moment arm:	1.25	in	
Yield strength, F_{ty} or F_{cy}:	35	ksi	(enter lowest yield strength)
Tensile ultimate strength, F_{tu}:	42	ksi	
Tension coefficient, k_t:	1		
Yielding safety factor, Ω_b:	1.65		
Rupture safety factor, Ω_b:	1.95		
Moment capacity:	239	ft-lbs	
Load:	1893	lbs	
Moment:	197	ft-lbs	
Check Plate:	82.4%		
Result:	**Selected plate is adequate.**		
Note:	LRFD Loads and ASD Capacities = Conservative.		

JOB NO.: #NAME?

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES **SUBJECT:** Calculations

SELF-TAPPING SCREW CONNECTION

Location: Cross angle to Girder Tube

Screw Size:	0.3125	
Number of Anchors:	3	
Edge Distance:	1	in
Screw Type:	Hilti/Elco Dril-Flex	

Member in Contact with Screw Head			Member not in contact with screw head		
			Screw Slot?	No	
Thickness, t_1 [in]:	0.25		Thickness, t_1 [in]:	0.25	
Material:	Aluminum		Material:	Aluminum	
Grade:	6061-T6		Grade:	6061-T6	
F_y:	35	ksi	F_y:	35	ksi
F_u:	38	ksi	F_u:	38	ksi

Shear:	4260	lbs	
Tension:	200	lbs	
Shear Capacity:	2284	lbs/Screw	Per ICC ESR-3332
Tension Capacity:	827	lbs/Screw	ADM 2015, Eq. J.5-8
Result:	0.70	**(3) 5/16 Screw(s) are Adequate**	

BOLTED SHEAR CONNECTION

Location: Diagonal Brace

Bolt Grade:	ASTM A325		
Bolt Diameter:	0.625	in	
Number of Bolts:	1		
Double Shear?	No		
Bolt Capacity:	12425	lbs	(AISC Equation J3-1)
Shear Load:	3650	lbs	
Check Bolt:	29.4%		
Result:	**Select (1) 0.625 in. dia. ASTM A325 bolt.**		
Note:			

JOB NO.: #NAME?

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES **SUBJECT:** Calculations

BOLT BEARING ON ALUMINUM

Location: Diagonal Brace to Tab Plate

Parallel Edge Distance, d_e:	1	in	(measured from center of hole)
Plate Thickness, t:	0.25	in	
Plate Ultimate Strength, F_{tu}:	24	ksi	(per ADM Table A.3.4 or A.3.5)
Bolt Diameter, D:	0.625	in	
Number of Bolts:	1		
Hole:	Standard		
Bearing Capacity:	4500	lbs	
Load:	3650	lbs	
Check Bearing:	81.1%		
Result:	**Selected connection type is adequate.**		
Note:			

ALUM. PLATE IN BENDING

Location: Column Base Plate

Plate depth:	1	in	
Plate width:	4	in	This calc module is only set up to perform ASD code chec
Section modulus, S:	0.667	in^3	
Moment arm:	1.625	in	
Yield strength, F_{ty} or F_{cy}:	15	ksi	(enter lowest yield strength)
Tensile ultimate strength, F_{tu}:	24	ksi	
Tension coefficient, k_t:	1		
Yielding safety factor, Ω_b:	1.65		
Rupture safety factor, Ω_b:	1.95		
Moment capacity:	657	ft-lbs	
Load:	3071	lbs	
Moment:	416	ft-lbs	
Check Plate:	63.3%		
Result:	**Selected plate is adequate.**		
Note:	LRFD Loads and ASD Capacities = Conservative.		

JOB NO.: #NAME?

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN BRIDGES **SUBJECT:** Calculations

ALUM. PLATE IN BENDING Location: Girder to Column top

Plate depth:	0.625	in	
Plate width:	3.5	in	This calc module is only set up to perform ASD code chec
Section modulus, S:	0.228	in^3	
Moment arm:	1	in	
Yield strength, F_{ty} or F_{cy}:	15	ksi	(enter lowest yield strength)
Tensile ultimate strength, F_{tu}:	24	ksi	
Tension coefficient, k_t:	1		
Yielding safety factor, Ω_b:	1.65		
Rupture safety factor, Ω_b:	1.95		
Moment capacity:	224	ft-lbs	
Load:	2817	lbs	
Moment:	144	ft-lbs	
Check Plate:	64.4%		
Result:	**Selected plate is adequate.**		
Note:	LRFD Loads and ASD Capacities = Conservative.		

ALUM. PLATE IN BENDING Location: Girder to Column top

Plate depth:	0.625	in	
Plate width:	5	in	This calc module is only set up to perform ASD code chec
Section modulus, S:	0.326	in^3	
Moment arm:	1.8	in	
Yield strength, F_{ty} or F_{cy}:	15	ksi	(enter lowest yield strength)
Tensile ultimate strength, F_{tu}:	24	ksi	
Tension coefficient, k_t:	1		
Yielding safety factor, Ω_b:	1.65		
Rupture safety factor, Ω_b:	1.95		
Moment capacity:	321	ft-lbs	
Load:	3254	lbs	
Moment:	300	ft-lbs	
Check Plate:	93.7%		
Result:	**Selected plate is adequate.**		
Note:	LRFD Loads and ASD Capacities = Conservative.		

JOB NO.: U6044.0002.241

PROJECT: 1B, 24B, 27B, & 33B PEDESTRIAN S **SUBJECT:** CONNECTION ANALYSIS

FOUR-BOLT CONNECTION SUBJECT TO COMBINED LOADING

Description: Connection of Girder to Mid span tower.

Geometry

Column Shape:	Rectangular	
Width (in) =	4	(parallel to x-axis)
Height (in) =	4	(parallel to y-axis)
Socketed?	No	
Bolt spacing 1 (in) =	7	(parallel to x-axis)
Bolt spacing 2 (in) =	6	(parallel to y-axis)
Bolt diameter (in) =	0.625	
Bolt grade:	A325N	
Bolt compression:	Consider	
Tensile strength (lbs):	20709	
Shear strength (lbs):	12425	
Plate width (in) =	10	(parallel to x-axis)
Plate height (in) =	8	(parallel to y-axis)
Thickness (in) =	0.625	
Plate Grade:	A36	
Effective Width:	45° spread plus nut	
	4.81	in
Compression location:	Bolt line	
XX lever arm (in) =	6	
YY lever arm (in) =	7	
Moment arm (in) =	1.80	

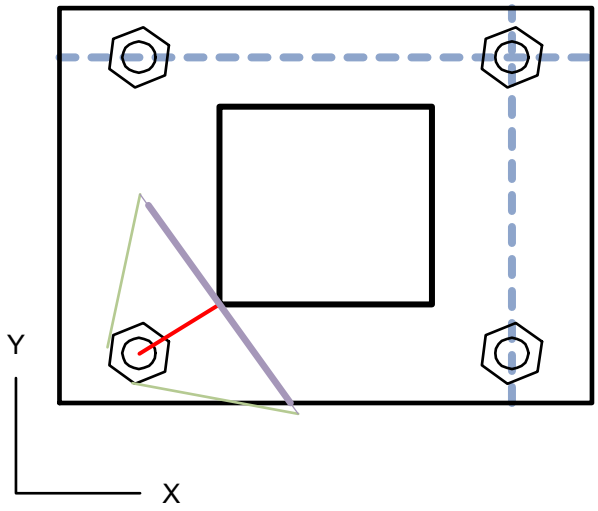
Weld

Type: Fillet

Electrode Class Number (ksi): 70

Required fillet leg size (in) = 0.079

Actual fillet leg size (in) = **3/16**



Loads

Load Type:	LRFD
$Axial_{(Z)}$ (lb) =	-800
$Shear_X$ (lb) =	1200
$Shear_Y$ (lb) =	25
$Moment_{XX}$ (ft-lb) =	3053.571
$Moment_{YY}$ (ft-lb) =	
$Torque_{(ZZ)}$ (ft-lb) =	

Results

Worst LC

Maximum Bolt Tension (lbs) =	3254
Maximum Bolt Shear (lbs) =	300
Bolt Stress Ratio:	**15.7%**
Plate Bending Stress Ratio:	**38.6%**
Plate Bearing Stress Ratio:	**1.4%**
Weld stress ratio:	**42.4%**

Nut size across corners (in):	Heavy Hex	1.23
Washer diameter (in):	F436 Standard	1.31
Rect. column corner radius (in):		
Gap size / fit check (in):	0.96	

JOB NO.: U6044.0002.241

PROJECT: 1B, 24B, 27B, & 33B PEDESTA **SUBJECT:** WELD GROUP ANALYSIS

ALUMINUM WELDED CONNECTION WITH FILLET WELDS TREATED AS LINES

(Per The Aluminum Design Manual, 2015 Edition)

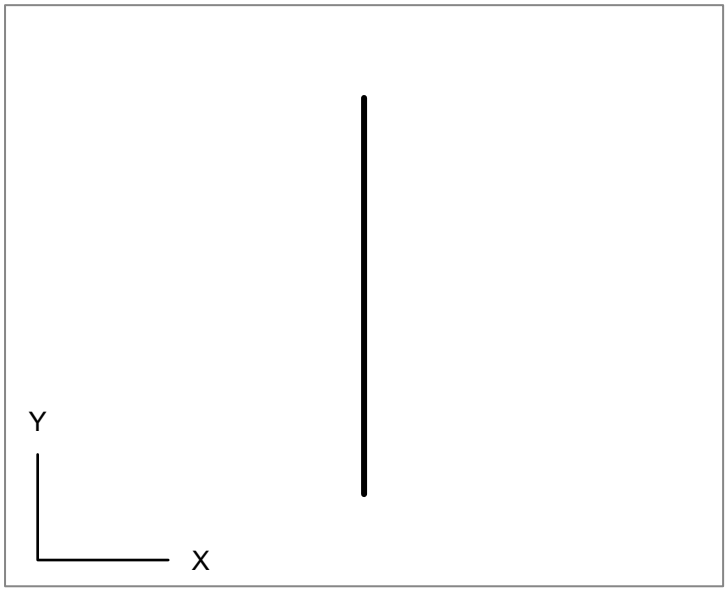
Description: Diagonal and horizontal Beam Tabs

Geometry

Weld Pattern:	Single weld line, vertical	
d (in) =	6	(parallel to y-axis)
S_{XWELD} (in^2) =	6.00	
S_{YWELD} (in^2) =	0.00	
Ip_{WELD} (in^3) =	18.00	
Lweld (in) =	6.00	
Torque arm (in) =	3.00	
Graphic Scale:	100%	

Results

Filler Material:	4043	
Base Metal:	6061-T6	
Weld Type:	Fillet	
Weld leg size (in.):	**1/4**	**Unity**
Design B.M. Tensile Strength (lbs/in):	2700	**0% Okay**
Design B.M. Shear Strength (lbs/in):	1620	**83.4% Okay**
Design Weld Filler Strength (lbs/in):	1623	**83.2% Okay**



Loads on Weld Group

Load Type:	LRFD		
$Axial_{(Z)}$ (lb) =		v_{axial} (lb/in) =	0
$Shear_X$ (lb) =	5975	v_{shearx} (lb/in) =	996
$Shear_Y$ (lb) =	5475	v_{sheary} (lb/in) =	913
$Moment_{XX}$ (ft-lb) =		$v_{momentxx}$ (lb/in) =	0
$Moment_{YY}$ (ft-lb) =		$v_{momentyy}$ (lb/in) =	0
$Torque_{(ZZ)}$ (ft-lb) =		v_{torque} (lb/in) =	0

$v_{max\text{-}shear}$ (lb/in) =	1351
$v_{max\text{-}tension}$ (lb/in) =	0
$v_{max\text{-}total}$ (lb/in) =	1351

Project Title:
Engineer: MBT
Project ID:
Project Descr: Aluminum Pedestrian Bridges

Cantilevered Retaining Wall

File: Retaining Wall 34.ec6

Lic. # : KW-06004714
VECTOR STRUCTURAL ENGINEERS

DESCRIPTION: Retaining Wall

Criteria

Retained Height	=	0.88 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	0.00 : 1
Height of Soil over Toe	=	0.00 in
Water height over heel	=	0.0 ft

Vertical component of active Lateral soil pressure options:
NOT USED for Soil Pressure.
NOT USED for Sliding Resistance.
NOT USED for Overturning Resistance.

Soil Data

Allow Soil Bearing	=	1,500.0 psf
Equivalent Fluid Pressure Method		
Heel Active Pressure	=	45.0 psf/ft
Toe Active Pressure	=	0.0 psf/ft
Passive Pressure	=	300.0 psf/ft
Soil Density, Heel	=	110.00 pcf
Soil Density, Toe	=	110.00 pcf
Friction Coeff btwn Ftg & Soil	=	0.330
Soil height to ignore for passive pressure	=	12.00 in

Calculations per ACI 318-14, TMS 402-16, IBC 2018, CBC 2019, ASCE 7-16

Surcharge Loads

Surcharge Over Heel	=	100.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	0.0 psf
NOT Used for Sliding & Overturning		

Lateral Load Applied to Stem

Lateral Load	=	0.0 plf
...Height to Top	=	1.00 ft
...Height to Bottom	=	0.00 ft
Wind on Exposed Stem	=	0.0 psf

Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

Axial Load Applied to Stem

Axial Dead Load	=	0.0 lbs
Axial Live Load	=	210.0 lbs
Axial Load Eccentricity	=	0.0 in

Design Summary

Wall Stability Ratios

Overturning	=	1.77	OK
Sliding	=	1.71	OK
Total Bearing Load	=	1,036 lbs	
...resultant ecc.	=	4.96 in	
Soil Pressure @ Toe	=	1,496 psf	OK
Soil Pressure @ Heel	=	0 psf	OK
Allowable	=	1,500 psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	1,917 psf	
ACI Factored @ Heel	=	0 psf	
Footing Shear @ Toe	=	0.0 psi	OK
Footing Shear @ Heel	=	0.6 psi	OK
Allowable	=	94.9 psi	

Sliding Calcs (Vertical Component NOT Used)

Lateral Sliding Force	=	340.0 lbs
less 100% Passive Force	= -	581.5 lbs
less 0 % Friction Force	= -	0.0 lbs
Added Force Req'd	=	0.0 lbs OK
....for 1.5 : 1 Stability	=	0.0 lbs OK

Load Factors

Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.600
Seismic, E	1.000

Stem Construction

Top Stem

Stem OK

Design Height Above Ftg	ft =	0.00	
Wall Material Above "Ht"	=	Concrete	
Thickness	in =	18.00	
Rebar Size	=	# 4	
Rebar Spacing	in =	12.00	
Rebar Placed at	=	Edge	
Design Data			
fb/FB + fa/Fa	=	0.002	
Total Force @ Section	lbs =	84.8	
Moment....Actual	ft-l =	33.1	
Moment.....Allowable	ft-l =	14,492.3	
Shear.....Actual	psi =	0.4	
Shear.....Allowable	psi =	94.9	
Wall Weight	psf =	225.0	
Rebar Depth 'd'	in =	16.25	
Lap splice if above	in =	14.80	
Lap splice if below	in =	6.64	
Hook embed into footing	in =	6.64	
Concrete Data			
f'c	psi =	4,000.0	
Fy	psi =		

Project Title:
Engineer: MBT
Project ID:
Project Descr: Aluminum Pedestrian Bridges

Cantilevered Retaining Wall

File: Retaining Wall 34.ec6

Lic. # : KW-06004714
VECTOR STRUCTURAL ENGINEERS

DESCRIPTION: Retaining Wall

Footing Dimensions & Strengths

Toe Width	=	0.00 ft
Heel Width	=	1.75
Total Footing Width	=	1.75
Footing Thickness	=	26.50 in
Key Width	=	0.00 in
Key Depth	=	0.00 in
Key Distance from Toe	=	0.00 ft

f'c = 4,000 psi Fy = 60,000 psi
Footing Concrete Density = 150.00 pcf
Min. As % = 0.0018
Cover @ Top 3.00 @ Btm.= 3.00 in

Footing Design Results

		Toe	Heel	
Factored Pressure	=	1,917	0	psf
Mu' : Upward	=	0	0	ft-lb
Mu' : Downward	=	0	21	ft-lb
Mu: Design	=	0	21	ft-lb
Actual 1-Way Shear	=	0.00	0.61	psi
Allow 1-Way Shear	=	0.00	94.87	psi

Toe Reinforcing = # 4 @ 18.00 in
Heel Reinforcing = # 4 @ 18.00 in
Key Reinforcing = None Spec'd

Other Acceptable Sizes & Spacings

Toe: Not req'd, Mu < S * Fr
Heel: Not req'd, Mu < S * Fr
Key: No key defined

Summary of Overturning & Resisting Forces & Moments

		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-lb			.....RESISTING..... Force lbs	Distance ft	Moment ft-lb
Heel Active Pressure	=	213.9	1.03	219.8	Soil Over Heel	=	24.1	1.63	39.1
Surcharge over Heel	=	126.1	1.54	194.5	Sloped Soil Over Heel	=			
Toe Active Pressure	=		0.74		Surcharge Over Heel	=	25.0	1.63	40.6
Surcharge Over Toe	=				Adjacent Footing Load	=			
Adjacent Footing Load	=				Axial Dead Load on Stem	=		0.75	
Added Lateral Load	=				* Axial Live Load on Stem	=	210.0	0.75	157.5
Load @ Stem Above Soil	=				Soil Over Toe	=			
					Surcharge Over Toe	=			
					Stem Weight(s)	=	196.9	0.75	147.7
					Earth @ Stem Transitions	=			
					Footing Weight	=	579.7	0.88	507.2
					Key Weight	=			
					Vert. Component	=			
Total	=	340.0	O.T.M. =	414.3	Total	=	825.6 lbs	R.M. =	734.6

Resisting/Overturning Ratio = 1.77
Vertical Loads used for Soil Pressure = 1,035.6 lbs

* Axial live load NOT included in total displayed, or used for overturning resistance, but is included for soil pressure calculation.

Company:		Page:	1
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 11, 2024	Date:	7/23/2024
Fastening point:			

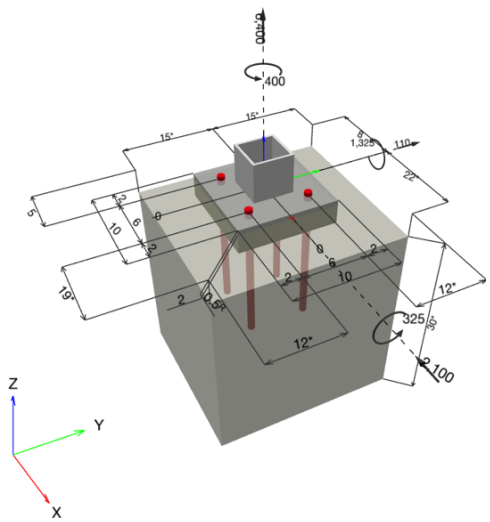
Specifier's comments:

1 Input data

Anchor type and diameter:	**Heavy Hex Head ASTM F 1554 GR. 55 3/4**
Item number:	not available
Specification text:	Hilti Heavy Hex Head headed stud anchor with 12 in embedment, 3/4, Steel galvanized, installation per instruction for use
Effective embedment depth:	h_{ef} = 12.000 in.
Material:	ASTM F 1554
Evaluation Service Report:	Hilti Technical Data
Issued I Valid:	- | -
Proof:	Design Method ACI 318-19 / CIP
Stand-off installation:	without clamping (anchor); restraint level (anchor plate): 2.00; e_b = 2.000 in.; t = 0.500 in.
	Hilti Grout: CB-G EG, epoxy, $f_{c,Grout}$ = 14,939 psi
Anchor plate[R] :	l_x x l_y x t = 10.000 in. x 10.000 in. x 0.500 in.; (Recommended plate thickness: not calculated)
Profile:	Square HSS (AISC), HSS4X4X.25; (L x W x T) = 4.000 in. x 4.000 in. x 0.250 in.
Base material:	cracked concrete, 4000, f_c' = 4,000 psi; h = 30.000 in.
Reinforcement:	tension: not present, shear: not present;
	edge reinforcement: none or < No. 4 bar

[R] - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [lb, ft.lb]



Company:		Page:	2
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 11, 2024	Date:	7/23/2024
Fastening point:			

1.1 Design results

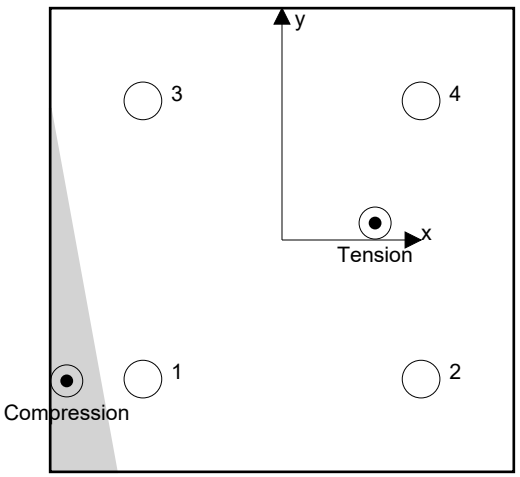
Case	Description	Forces [lb] / Moments [ft.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 6,400; V_x = -2,100; V_y = 110; M_x = 325.000; M_y = -1,325.000; M_z = 400.000;	no	85

2 Load case/Resulting anchor forces

Anchor reactions [lb]
Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	358	368	-325	-172
2	2,653	397	-325	227
3	776	745	-725	-172
4	3,071	760	-725	227

max. concrete compressive strain: 0.06 [‰]
max. concrete compressive stress: 245 [psi]
resulting tension force in (x/y)=(2.008/0.366): 6,858 [lb]
resulting compression force in (x/y)=(-4.643/-3.039): 458 [lb]



Anchor forces are calculated based on the assumption of a rigid anchor plate.

3 Tension load

	Load N_{ua} [lb]	Capacity ϕ N_n [lb]	Utilization $\beta_N = N_{ua}/\phi$ N_n	Status
Steel Strength*	3,071	18,787	17	OK
Pullout Strength*	3,071	20,406	16	OK
Concrete Breakout Failure**	6,858	19,753	35	OK
Concrete Side-Face Blowout, direction **	N/A	N/A	N/A	N/A

* highest loaded anchor **anchor group (anchors in tension)

Company:		Page:	3
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 11, 2024	Date:	7/23/2024
Fastening point:			

3.1 Steel Strength

$N_{sa} = A_{se,N} f_{uta}$ ACI 318-19 Eq. (17.6.1.2)
$\phi N_{sa} \geq N_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
0.33	75,000

Calculations

N_{sa} [lb]
25,050

Results

N_{sa} [lb]	ϕ_{steel}	ϕN_{sa} [lb]	N_{ua} [lb]
25,050	0.750	18,787	3,071

3.2 Pullout Strength

$N_{pN} = \psi_{c,p} N_p$ ACI 318-19 Eq. (17.6.3.1)
$N_p = 8 A_{brg} f'_c$ ACI 318-19 Eq. (17.6.3.2.2a)
$\phi N_{pN} \geq N_{ua}$ ACI 318-19 Table 17.5.2

Variables

$\psi_{c,p}$	A_{brg} [in.^{2}]	λ_a	f'_c [psi]
1.000	0.91	1.000	4,000

Calculations

N_p [lb]
29,152

Results

N_{pn} [lb]	$\phi_{concrete}$	ϕN_{pn} [lb]	N_{ua} [lb]
29,152	0.700	20,406	3,071

Company:		Page:	4
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 11, 2024	Date:	7/23/2024
Fastening point:			

3.3 Concrete Breakout Failure

$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \psi_{ec,N}\ \psi_{ed,N}\ \psi_{c,N}\ \psi_{cp,N}\ N_b$ — ACI 318-19 Eq. (17.6.2.1b)

$\phi\ N_{cbg} \geq N_{ua}$ — ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9\ h_{ef}^2$ — ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2\ e'_N}{3\ h_{ef}}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.3.1)

$\psi_{ed,N} = 0.7 + 0.3\left(\frac{c_{a,min}}{1.5h_{ef}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5h_{ef}}{c_{ac}}\right) \leq 1.0$ — ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c\ \lambda_a\ \sqrt{f'_c}\ h_{ef}^{1.5}$ — ACI 318-19 Eq. (17.6.2.2.1)

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
8.000	2.008	0.366	5.000	1.000

c_{ac} [in.]	k_c	λ_a	f'_c [psi]
-	24	1.000	4,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
690.00	576.00	0.857	0.970	0.825	1.000	34,346

Results

N_{cbg} [lb]	$\phi_{concrete}$	$\phi\ N_{cbg}$ [lb]	N_{ua} [lb]
28,218	0.700	19,753	6,858

Company:		Page:	5
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 11, 2024	Date:	7/23/2024
Fastening point:			

4 Shear load

	Load V_{ua} [lb]	Capacity ϕ V_n [lb]	Utilization $\beta_V = V_{ua}/\phi$ V_n	Status
Steel Strength*	760	7,816	10	OK
Steel failure (with lever arm)*	760	967	79	OK
Pryout Strength**	2,103	39,542	6	OK
Concrete edge failure in direction x-**	2,149	5,428	40	OK

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa} = 0.6\ A_{se,V}\ f_{uta}$ ACI 318-19 Eq. (17.7.1.2b)
$\phi\ V_{steel} \geq V_{ua}$ ACI 318-19 Table 17.5.2

Variables

$A_{se,V}$ [in.^{2}]	f_{uta} [psi]
0.33	75,000

Calculations

V_{sa} [lb]
15,030

Results

V_{sa} [lb]	ϕ_{steel}	ϕ_{eb}	$\phi\ V_{sa}$ [lb]	V_{ua} [lb]
15,030	0.650	0.800	7,816	760

Company:		Page:	6
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 11, 2024	Date:	7/23/2024
Fastening point:			

4.2 Steel failure (with lever arm)

V_s^M	$= \frac{\alpha_M \cdot M_s}{L_b}$	bending equation for stand-off
M_s	$= M_s^0 \left(1 - \frac{N_{ua}}{\phi N_{sa}}\right)$	resultant flexural resistance of anchor
M_s^0	$= (1.2)\ (S)\ (f_{u,min})$	characteristic flexural resistance of anchor
$\left(1 - \frac{N_{ua}}{\phi N_{sa}}\right)$		reduction for tensile force acting simultaneously with a shear force on the anchor
S	$= \frac{\pi (d)^3}{32}$	elastic section modulus of anchor bolt at concrete surface
L_b	$= z + (n)(d_0)$	internal lever arm adjusted for spalling of the surface concrete
ϕV_s^M	$\geq V_{ua}$	ACI 318-19 Table 17.5.2

Variables

α_M	$f_{u,min}$ [psi]	N_{ua} [lb]	ϕN_{sa} [lb]	z [in.]	n	d_0 [in.]
2.00	75,000	3,071	18,787	2.250	0.500	0.750

Calculations

M_s^0 [ft.lb]	$\left(1 - \frac{N_{ua}}{\phi N_{sa}}\right)$	M_s [ft.lb]	L_b [in.]
194.563	0.837	162.758	2.625

Results

V_s^M [lb]	ϕ_{steel}	ϕV_s^M [lb]	V_{ua} [lb]
1,488	0.650	967	760

Company:		Page:	7
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 11, 2024	Date:	7/23/2024
Fastening point:			

4.3 Pryout Strength

$V_{cpg} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$ ACI 318-19 Eq. (17.7.3.1b)

$\phi V_{cpg} \geq V_{ua}$ ACI 318-19 Table 17.5.2

A_{Nc} see ACI 318-19, Section 17.6.2.1, Fig. R 17.6.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-19 Eq. (17.6.2.1.4)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e'_N}{3 h_{ef}}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.3.1)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.4.1b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-19 Eq. (17.6.2.6.1b)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ ACI 318-19 Eq. (17.6.2.2.1)

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	8.000	0.119	2.279	5.000

$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
1.000	∞	24	1.000	4,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
690.00	576.00	0.990	0.840	0.825	1.000	34,346

Results

V_{cpg} [lb]	$\phi_{concrete}$	ϕV_{cpg} [lb]	V_{ua} [lb]
56,488	0.700	39,542	2,103

4.4 Concrete edge failure in direction x-

$V_{cbg} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ec,V} \psi_{ed,V} \psi_{c,V} \psi_{h,V} \psi_{parallel,V} V_b$ ACI 318-19 Eq. (17.7.2.1b)

$\phi V_{cbg} \geq V_{ua}$ ACI 318-19 Table 17.5.2

A_{Vc} see ACI 318-19, Section 17.7.2.1, Fig. R 17.7.2.1(b)

$A_{Vc0} = 4.5 c_{a1}^2$ ACI 318-19 Eq. (17.7.2.1.3)

$\psi_{ec,V} = \left(\frac{1}{1 + \frac{e'_v}{1.5c_{a1}}}\right) \leq 1.0$ ACI 318-19 Eq. (17.7.2.3.1)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ ACI 318-19 Eq. (17.7.2.4.1b)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ ACI 318-19 Eq. (17.7.2.6.1)

$V_b = 9 \lambda_a \sqrt{f'_c} c_{a1}^{1.5}$ ACI 318-19 Eq. (17.7.2.2.1b)

Variables

c_{a1} [in.]	c_{a2} [in.]	e_{cV} [in.]	$\psi_{c,V}$	h_a [in.]
5.000	12.000	1.117	1.000	30.000

l_e [in.]	λ_a	d_a [in.]	f'_c [psi]	$\psi_{parallel,V}$
6.000	1.000	0.750	4,000	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ec,V}$	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [lb]
157.50	112.50	0.870	1.000	1.000	6,364

Results

V_{cbg} [lb]	$\phi_{concrete}$	ϕV_{cbg} [lb]	V_{ua} [lb]
7,755	0.700	5,428	2,149

5 Combined tension and shear loads, per ACI 318-19 section 17.8

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.347	0.786	5/3	85	OK

$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} <= 1$

Company:		Page:	9
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 11, 2024	Date:	7/23/2024
Fastening point:			

6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- ACI 318 does not specifically address anchor bending when a stand-off condition exists. PROFIS Engineering calculates a shear load corresponding to anchor bending when stand-off exists and includes the results as a shear Design Strength!
- For additional information about ACI 318 strength design provisions, please go to https://submittals.us.hilti.com/PROFISAnchorDesignGuide/

Fastening meets the design criteria!

Company:		Page:	10
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 11, 2024	Date:	7/23/2024
Fastening point:			

7 Installation data

Profile: Square HSS (AISC), HSS4X4X.25; (L x W x T) = 4.000 in. x 4.000 in. x 0.250 in.

Hole diameter in the fixture: d_f = 0.812 in.

Plate thickness (input): 0.500 in.

Recommended plate thickness: not calculated

Anchor type and diameter: Heavy Hex Head ASTM F 1554 GR. 55 3/4

Item number: not available

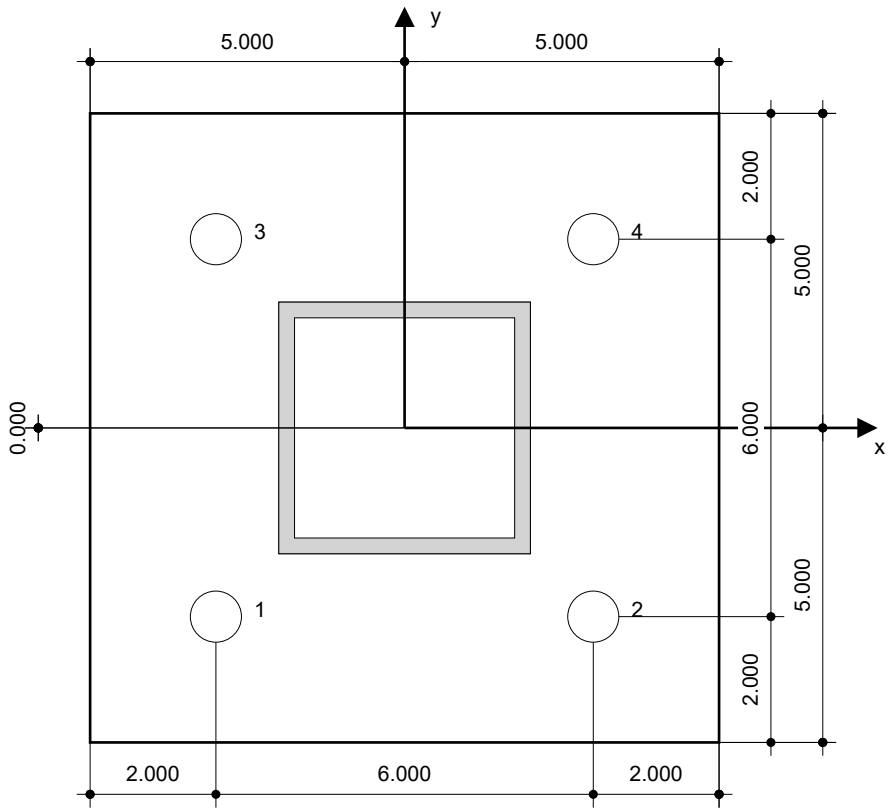
Maximum installation torque: -

Hole diameter in the base material: - in.

Hole depth in the base material: 12.000 in.

Minimum thickness of the base material: 13.000 in.

Hilti Heavy Hex Head headed stud anchor with 12 in embedment, 3/4, Steel galvanized, installation per instruction for use



Coordinates Anchor [in.]

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	-3.000	-3.000	5.000	25.000	12.000	18.000
2	3.000	-3.000	11.000	19.000	12.000	18.000
3	-3.000	3.000	5.000	25.000	18.000	12.000
4	3.000	3.000	11.000	19.000	18.000	12.000

8 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

Company:		Page:	1
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 13, 2024	Date:	7/23/2024
Fastening point:			

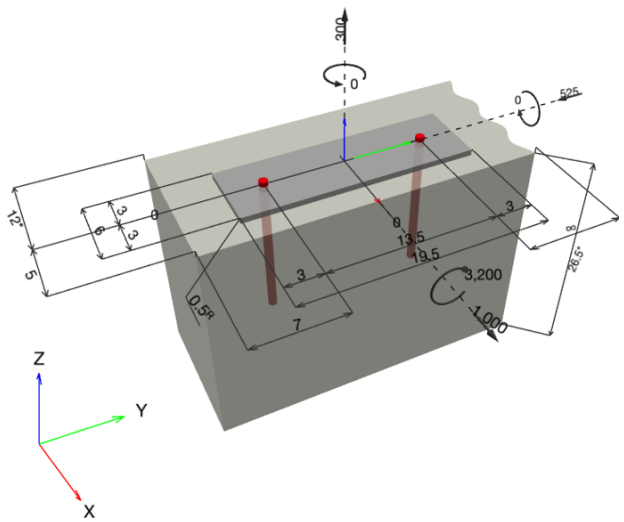
Specifier's comments:

1 Input data

Anchor type and diameter:	**Heavy Hex Head ASTM F 1554 GR. 55 3/4**
Item number:	not available
Specification text:	Hilti Heavy Hex Head headed stud anchor with 12 in embedment, 3/4, Steel galvanized, installation per instruction for use
Effective embedment depth:	h_{ef} = 12.000 in.
Material:	ASTM F 1554
Evaluation Service Report:	Hilti Technical Data
Issued I Valid:	- | -
Proof:	Design Method ACI 318-08 / CIP
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.500 in.
Anchor plate[R]:	l_x x l_y x t = 6.000 in. x 19.500 in. x 0.500 in.; (Recommended plate thickness: not calculated)
Profile:	no profile
Base material:	cracked concrete, 2500, f_c' = 2,500 psi; h = 26.500 in.
Reinforcement:	tension: condition B, shear: condition B; edge reinforcement: none or < No. 4 bar
Seismic loads (cat. C, D, E, or F)	no

[R] - The anchor calculation is based on a rigid anchor plate assumption.

Geometry [in.] & Loading [lb, ft.lb]

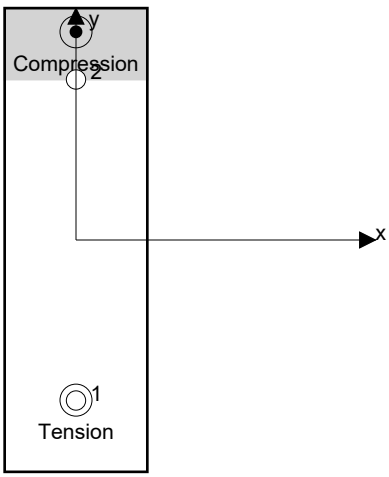


Company:		Page:	2
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 13, 2024	Date:	7/23/2024
Fastening point:			

1.1 Design results

Case	Description	Forces [lb] / Moments [ft.lb]	Seismic	Max. Util. Anchor [%]
1	Combination 1	N = 300; V_x = 1,000; V_y = -525; M_x = -3,200.000; M_y = 0.000; M_z = 0.000;	no	31

2 Load case/Resulting anchor forces



Anchor reactions [lb]
Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	2,646	565	500	-262
2	3	565	500	-262

max. concrete compressive strain:	0.06 [‰]
max. concrete compressive stress:	262 [psi]
resulting tension force in (x/y)=(0.000/-6.734):	2,649 [lb]
resulting compression force in (x/y)=(0.000/8.755):	2,349 [lb]

Anchor forces are calculated based on the assumption of a rigid anchor plate.

3 Tension load

	Load N_{ua} [lb]	Capacity ϕ N_n [lb]	Utilization $\beta_N = N_{ua}/\phi$ N_n	Status
Steel Strength*	2,646	18,787	15	OK
Pullout Strength*	2,646	12,754	21	OK
Concrete Breakout Failure**	2,649	9,634	28	OK
Concrete Side-Face Blowout, direction **	N/A	N/A	N/A	N/A

* highest loaded anchor **anchor group (anchors in tension)

Company:		Page:	3
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 13, 2024	Date:	7/23/2024
Fastening point:			

3.1 Steel Strength

$N_{sa} = A_{se,N} f_{uta}$ ACI 318-08 Eq. (D-3)
$\phi N_{sa} \geq N_{ua}$ ACI 318-08 Eq. (D-1)

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
0.33	75,000

Calculations

N_{sa} [lb]
25,050

Results

N_{sa} [lb]	ϕ_{steel}	ϕN_{sa} [lb]	N_{ua} [lb]
25,050	0.750	18,787	2,646

3.2 Pullout Strength

$N_{pN} = \psi_{c,p} N_p$ ACI 318-08 Eq. (D-14)
$N_p = 8 A_{brg} f'_c$ ACI 318-08 Eq. (D-15)
$\phi N_{pN} \geq N_{ua}$ ACI 318-08 Eq. (D-1)

Variables

$\psi_{c,p}$	A_{brg} [in.^{2}]	f'_c [psi]
1.000	0.91	2,500

Calculations

N_p [lb]
18,220

Results

N_{pn} [lb]	$\phi_{concrete}$	ϕN_{pn} [lb]	N_{ua} [lb]
18,220	0.700	12,754	2,646

Company:		Page:	4
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 13, 2024	Date:	7/23/2024
Fastening point:			

3.3 Concrete Breakout Failure

$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \psi_{ec,N}\ \psi_{ed,N}\ \psi_{c,N}\ \psi_{cp,N}\ N_b$ ACI 318-08 Eq. (D-5)

$\phi\ N_{cbg} \geq N_{ua}$ ACI 318-08 Eq. (D-1)

A_{Nc} see ACI 318-08, Part D.5.2.1, Fig. RD.5.2.1(b)

$A_{Nc0} = 9\ h_{ef}^2$ ACI 318-08 Eq. (D-6)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2\ e'_N}{3\ h_{ef}}}\right) \leq 1.0$ ACI 318-08 Eq. (D-9)

$\psi_{ed,N} = 0.7 + 0.3\left(\frac{c_{a,min}}{1.5h_{ef}}\right) \leq 1.0$ ACI 318-08 Eq. (D-11)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5h_{ef}}{c_{ac}}\right) \leq 1.0$ ACI 318-08 Eq. (D-13)

$N_b = k_c\ \lambda\ \sqrt{f'_c}\ h_{ef}^{1.5}$ ACI 318-08 Eq. (D-7)

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
8.000	0.000	6.734	5.000	1.000

c_{ac} [in.]	k_c	λ	f'_c [psi]
-	24	1	2,500

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
552.50	576.00	1.000	0.641	0.825	1.000	27,153

Results

N_{cbg} [lb]	$\phi_{concrete}$	$\phi\ N_{cbg}$ [lb]	N_{ua} [lb]
13,763	0.700	9,634	2,649

Company:		Page:	5
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 13, 2024	Date:	7/23/2024
Fastening point:			

4 Shear load

	Load V_{ua} [lb]	Capacity ϕ V_n [lb]	Utilization $\beta_V = V_{ua}/\phi$ V_n	Status
Steel Strength*	565	9,769	6	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	1,129	30,082	4	OK
Concrete edge failure in direction y-**	1,129	3,705	31	OK

* highest loaded anchor **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa} = 0.6\ A_{se,V}\ f_{uta}$ ACI 318-08 Eq. (D-20)
$\phi\ V_{steel} \geq V_{ua}$ ACI 318-08 Eq. (D-2)

Variables

$A_{se,V}$ [in.^{2}]	f_{uta} [psi]
0.33	75,000

Calculations

V_{sa} [lb]
15,030

Results

V_{sa} [lb]	ϕ_{steel}	$\phi\ V_{sa}$ [lb]	V_{ua} [lb]
15,030	0.650	9,769	565

Company:		Page:	6
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 13, 2024	Date:	7/23/2024
Fastening point:			

4.2 Pryout Strength

$V_{cpg} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b \right]$ ACI 318-08 Eq. (D-31)

$\phi V_{cpg} \geq V_{ua}$ ACI 318-08 Eq. (D-2)

A_{Nc} see ACI 318-08, Part D.5.2.1, Fig. RD.5.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-08 Eq. (D-6)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e'_N}{3 h_{ef}}} \right) \leq 1.0$ ACI 318-08 Eq. (D-9)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-08 Eq. (D-11)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-08 Eq. (D-13)

$N_b = k_c \lambda \sqrt{f'_c} h_{ef}^{1.5}$ ACI 318-08 Eq. (D-7)

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	8.000	0.000	0.000	5.000

$\psi_{c,N}$	c_{ac} [in.]	k_c	λ	f'_c [psi]
1.000	-	24	1	2,500

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
552.50	576.00	1.000	1.000	0.825	1.000	27,153

Results

V_{cpg} [lb]	$\phi_{concrete}$	ϕV_{cpg} [lb]	V_{ua} [lb]
42,974	0.700	30,082	1,129

Company:		Page:	7
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 13, 2024	Date:	7/23/2024
Fastening point:			

4.3 Concrete edge failure in direction y-

$V_{cb} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ed,V} \psi_{c,V} \psi_{h,V} \psi_{parallel,V} V_b$ ACI 318-08 Eq. (D-21)

$\phi V_{cb} \geq V_{ua}$ ACI 318-08 Eq. (D-2)

A_{Vc} see ACI 318-08, Part D.6.2.1, Fig. RD.6.2.1(b)

$A_{Vc0} = 4.5 c_{a1}^2$ ACI 318-08 Eq. (D-23)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ ACI 318-08 Eq. (D-28)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ ACI 318-08 Eq. (D-29)

$V_b = \left(7\left(\frac{l_e}{d_a}\right)^{0.2} \sqrt{d_a}\right) \lambda \sqrt{f_c'} c_{a1}^{1.5}$ ACI 318-08 Eq. (D-24)

Variables

c_{a1} [in.]	c_{a2} [in.]	$\psi_{c,V}$	h_a [in.]	l_e [in.]
7.000	5.000	1.000	26.500	6.000

λ	d_a [in.]	f_c' [psi]	$\psi_{parallel,V}$
1.000	0.750	2,500	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [lb]
162.75	220.50	0.843	1.000	8,509

Results

V_{cb} [lb]	$\phi_{concrete}$	ϕV_{cb} [lb]	V_{ua} [lb]
5,293	0.700	3,705	1,129

5 Combined tension and shear loads

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.275	0.305	5/3	26	OK

$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} <= 1$

Company:		Page:	8
Address:		Specifier:	
Phone I Fax:	|	E-Mail:	
Design:	Concrete - Jun 13, 2024	Date:	7/23/2024
Fastening point:			

6 Warnings

- The anchor design methods in PROFIS Engineering require rigid anchor plates per current regulations (AS 5216:2021, ETAG 001/Annex C, EOTA TR029 etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Engineering calculates the minimum required anchor plate thickness with CBFEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid anchor plate assumption is valid is not carried out by PROFIS Engineering. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies where the potential concrete failure surfaces are crossed by supplementary reinforcement proportioned to tie the potential concrete failure prism into the structural member. Condition B applies where such supplementary reinforcement is not provided, or where pullout or pryout strength governs.
- For additional information about ACI 318 strength design provisions, please go to https://submittals.us.hilti.com/PROFISAnchorDesignGuide/

Fastening meets the design criteria!

7 Installation data

Anchor type and diameter: Heavy Hex Head ASTM F 1554 GR. 55 3/4

Profile: no profile

Item number: not available

Hole diameter in the fixture: d_f = 0.812 in.

Maximum installation torque: -

Plate thickness (input): 0.500 in.

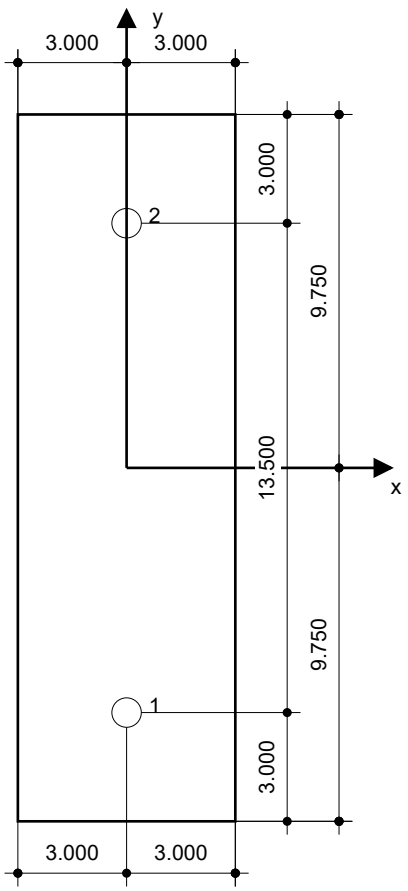
Hole diameter in the base material: - in.

Recommended plate thickness: not calculated

Hole depth in the base material: 12.000 in.

Minimum thickness of the base material: 13.000 in.

Hilti Heavy Hex Head headed stud anchor with 12 in embedment, 3/4, Steel galvanized, installation per instruction for use



Coordinates Anchor [in.]

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	0.000	-6.750	12.000	5.000	7.000	-
2	0.000	6.750	12.000	5.000	20.500	-

8 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.