CORE ONE CONSULTING USA

CORE ONE CONSULTING US LTD.
13555 SE 36th St, Suite 100
Bellevue, WA 98006

PRCTI20241635

Calculations required to be provided by the Permittee on site for all Inspections

Mount Analysis Report
AT&T

May 29, 2024

Site Name	DOWNTOWN PUYALLUP
Site ID	TA48
FA #	10102328
PTN #	3801A1DEJN
Pace #	MRWOR082373
Client	Mastec
Proposed Carrier	AT&T
Site Location	110 9TH Avenue, Southwest, Puyallup WA 98371 47.18472° N NAD83 122.29611° W NAD83
Mount Type	(3) Mount Pipes
Mount Usage Ratio	**56%**
Overall Result	**Pass**
Recommendation	--

Upon reviewing the results of this analysis, it is our opinion that the mount does meet the specified IBC/TIA/ASCE code and minimum design requirements. The existing mount is therefore deemed adequate to support the proposed loading as listed in this report.

City of Puyallup
Building
REVIEWED FOR COMPLIANCE
SKinnear
10/29/2024
2:48:31 PM

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

Michael Leeper

Digitally signed by Michael Leeper
DN: C=US, E=michael.leeper@coreoneconsultants.com, O=Core One Consultants, CN=Michael Leeper
Date: 2024.06.05 11:18:47-07'00'

MICHAEL B. LEEPER
STATE OF WASHINGTON
56058
REGISTERED
PROFESSIONAL ENGINEER

06/05/2024

Summary of Contents

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to CORE ONE CONSULTING USA is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of “like new” and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure’s condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report CORE ONE CONSULTING USA should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. CORE ONE CONSULTING USA is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the antenna mounted equipment only and does not reflect adequacy of the existing tower, other mounts, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

INTRODUCTION

At the request of **AT&T**, CORE ONE CONSULTING USA has performed a mount analysis on the existing antenna mount supporting structure. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The mount was analyzed using RISA 3D version 17.0.4 engineering software.

Supporting Documentation

Antenna Loading	DE130, dated 04/30/2024
Photos	Provided by Mastec
Previous Analysis	Mastec Structural Analysis, dated 10/28/2022

Analysis Code Requirements

Wind Speed	98 mph (3-Second Gust)
Wind Speed w/ ice	30 mph wind w/ 1.0" Ice
TIA Revision	ANSI/TIA-222-H
Adopted IBC	2018 IBC
Structure Class	II
Exposure Category	C
Topographic Category	Kzt=1
Calculated Crest Height	0 ft
Site Class	D - Default
Spectral Response	S_s=1.271g, S_1=0.438g

CONCLUSION

Upon reviewing the results of this analysis, it is our opinion that the antenna mount does meet the specified IBC/TIA code and minimum design requirements. The existing mount is therefore deemed adequate to support the proposed loading as listed in this report.

Performed by,

Alexander Bazeley
Structural Lead | **Core One Consulting USA**
2875 W Ray Road, Suite 6, Chandler, AZ 85224
(O) 1+(855) 708-2195 |
alex.bazeley@coreoneconsulting.com

Final Configuration

RAD Height (ft)	Qty.	Appurtenance	Mount type	Carrier
56.5	1	Cellmax 120716	Rooftop	AT&T
60.0	2	Cellmax 120726		
60.0	3	Kathrein 80010992		
62.5	3	Ericsson AIR6472 B77G B77M		
60.0	3	Ericsson 4471 B30		
	3	Ericsson 4490 B5/B12A		
	3	Ericsson 4890 B25/B66		
	3	4494 B14/B29		

Structure Usages - Alpha Sector

Summary		
Connection Angle	22%	Pass
Standoff	43%	Pass
Antenna Pipe	45%	Pass
Connections	1%	Pass
RATING =	**45%**	**Pass**

Structure Usages - Gamma & Beta Sector

Summary		
Connection Angle	13%	Pass
Standoff	35%	Pass
Antenna Pipe	56%	Pass
Connections	1%	Pass
RATING =	**56%**	**Pass**

Ultimate Windspeed	**Radial Ice**	**Height**	**Exposure Category**	**Structure Class**	**Topo Category**	Allowable EPA / Sector	Allowable Weight / Sector
98 mph	**1.0**	**62.5**	**C**	**II**	**1**	**112 sqft**	**2684lb**

APPENDIX A
Design Tables & Resources

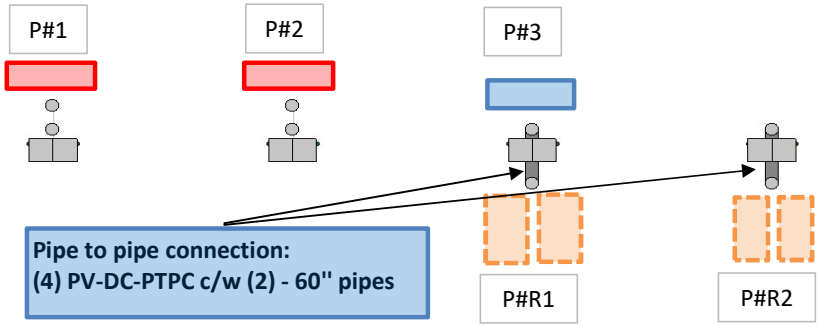
ANSI/TIA-222H - WIND, ICE & SEISMIC LOAD CALCULATIONS

Site Code/Name		TA48 - DOWNTOTOWN PUYALLUP		
State		Washington		
County		Pierce		*Reference*
Structure Class		II		*Table 2-1*
Exposure Category		C		*Section 2.6.5.1.2*
Topographic Factor	K_{zt}	1.00		*Section 2.6.6.2.2*
Mean Elevation of base of structure	z_s	41.7	ft	*ASCE7 Hazard Tool or Site Specific*
Height Above Ground	z	62.5	ft	
Rooftop Wind Speed-Up Factor	K_s	1.00		*Section 2.6.7*
Wind Parameters				
Basic wind speed	V	98	mph	*ASCE7-16 Hazards Tool*
Wind direction probability factor	K_d	0.95		*Section 16.6*
Gust effect factor	G_h	1.00		*Section 16.6*
Velocity Pressure (Ka = 0.9)		24.06	psf	*Section 2.6.11.6*
Wind & Ice Parameters				
Base windspeed in conjunction with ice, V		30	mph	*ASCE7 Hazards Tool*
Base Ice thickness	t_i	1.00	in	*ASCE7 Hazards Tool*
Ice Velocity Pressure (Ka = 0.9)	q_{ice}	2.25	psf	*Section 2.6.11.6*
Design Ice Thickness	t_{iz}	1.07	in	*Section 2.6.10*
Seismic Parameters				
Site Soil Class		D - Default		*Table 2-10*
Seismic Design Category		B		*ASCE7 Hazards Tool*
Spectral Response at Short Periods	S_s	1.271		*ASCE7 Hazards Tool*
Spectral Response at 1sec	S_1	0.438		*ASCE7 Hazards Tool*
Long Period Transition Period	T_L	6		*ASCE7 Hazards Tool*
Seismic Importance Factor	I_s	1		*Table 2-3*
Response modification coefficient	R	2		*Section 16.7*
Short-Period Site Coefficient	F_a	1.2		*Table 2-11*
Design Spectral Response at Short Periods	S_{DS}	1.017		*Section 2.7.5*
Seismic Response Coefficient	C_s	0.508		*Section 2.7.7.1*

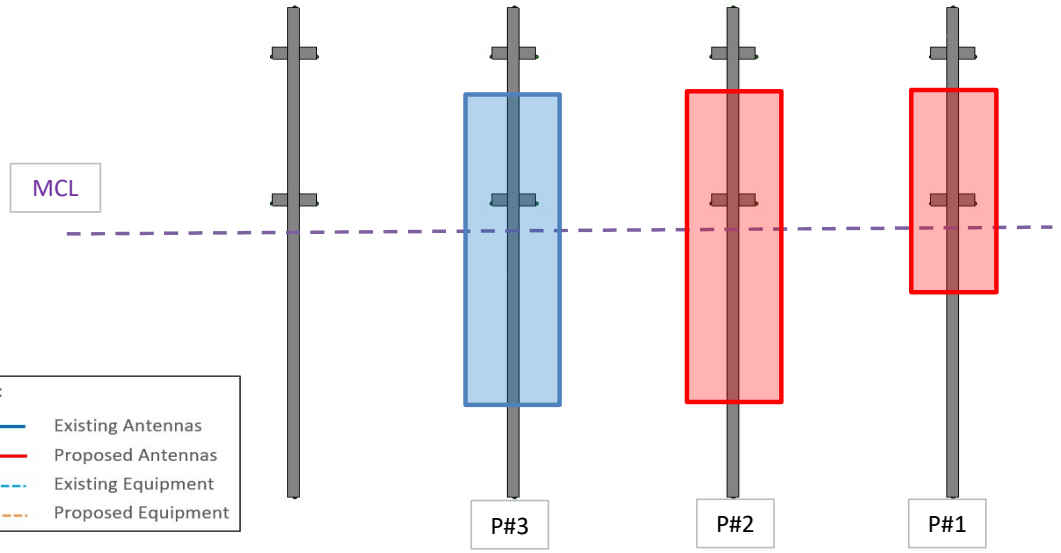
TYPICAL SECTOR

Position	Appurtenance properties						Wind		Ice	Seismic	EPA	
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0° [lbs]	90° [lbs]	Weight [lbs	E_H [lbs]	A_N [sqft]	A_T [sqft]
1	Erricson	AIR6472 B77G B77M	36.3	15.8	9.3	88.6	115.0	71.2	78.7	45.0	4.0	2.3
2	Cellmax	120716	96.0	24.0	8.1	160.0	487.7	202.9	278.1	81.3	16.0	5.4
3	KATHREIN	80010992	105.2	20.0	6.9	144.3	465.0	203.2	256.3	73.4	14.6	5.0
R1	Erricson	4471 B30	12.8	15.8	7.9	66.1	40.3	20.1	28.0	33.6	1.4	0.7
R1	Erricson	4490 B5/B12A	20.6	15.6	7.0	65.0	64.4	29.4	42.7	33.0	2.2	1.0
R2	Erricson	4890 B25/B66	20.6	15.7	7.0	67.2	64.9	29.4	42.9	34.2	2.2	1.0
R2	Erricson	4494 B14/B29	17.5	15.1	5.6	57.3	53.0	20.1	34.6	29.1	1.8	0.7
R2	Raycap	DC9-48-60-24-PC16-EV	16.3	16.6	8.2	35.0	54.3	26.8	36.9	17.8	1.9	0.9

Plan View
(N.T.S.)



Elevation
(N.T.S.)



ANSI/TIA-222H - WIND, ICE & SEISMIC LOAD CALCULATIONS

Site Code/Name		TA48 - DOWNTOTOWN PUYALLUP		
State		Washington		
County		Pierce		*Reference*
Structure Class		II		*Table 2-1*
Exposure Category		C		*Section 2.6.5.1.2*
Topographic Factor	K_{zt}	1.00		*Section 2.6.6.2.2*
Mean Elevation of base of structure	z_s	41.7	ft	*ASCE7 Hazard Tool or Site Specific*
Height Above Ground	z	60	ft	
Rooftop Wind Speed-Up Factor	K_s	1.00		*Section 2.6.7*
Wind Parameters				
Basic wind speed	V	98	mph	*ASCE7-16 Hazards Tool*
Wind direction probability factor	K_d	0.95		*Section 16.6*
Gust effect factor	G_h	1.00		*Section 16.6*
Velocity Pressure (Ka = 0.9)		23.86	psf	*Section 2.6.11.6*
Wind & Ice Parameters				
Base windspeed in conjunction with ice, V		30	mph	*ASCE7 Hazards Tool*
Base Ice thickness	t_i	1.00	in	*ASCE7 Hazards Tool*
Ice Velocity Pressure (Ka = 0.9)	q_{ice}	2.24	psf	*Section 2.6.11.6*
Design Ice Thickness	t_{iz}	1.06	in	*Section 2.6.10*
Seismic Parameters				
Site Soil Class		D - Default		*Table 2-10*
Seismic Design Category		B		*ASCE7 Hazards Tool*
Spectral Response at Short Periods	S_s	1.271		*ASCE7 Hazards Tool*
Spectral Response at 1sec	S_1	0.438		*ASCE7 Hazards Tool*
Long Period Transition Period	T_L	6		*ASCE7 Hazards Tool*
Seismic Importance Factor	I_s	1		*Table 2-3*
Response modification coefficient	R	2		*Section 16.7*
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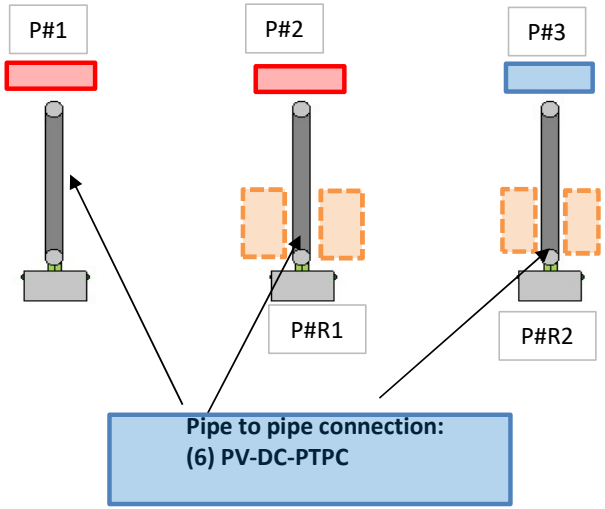
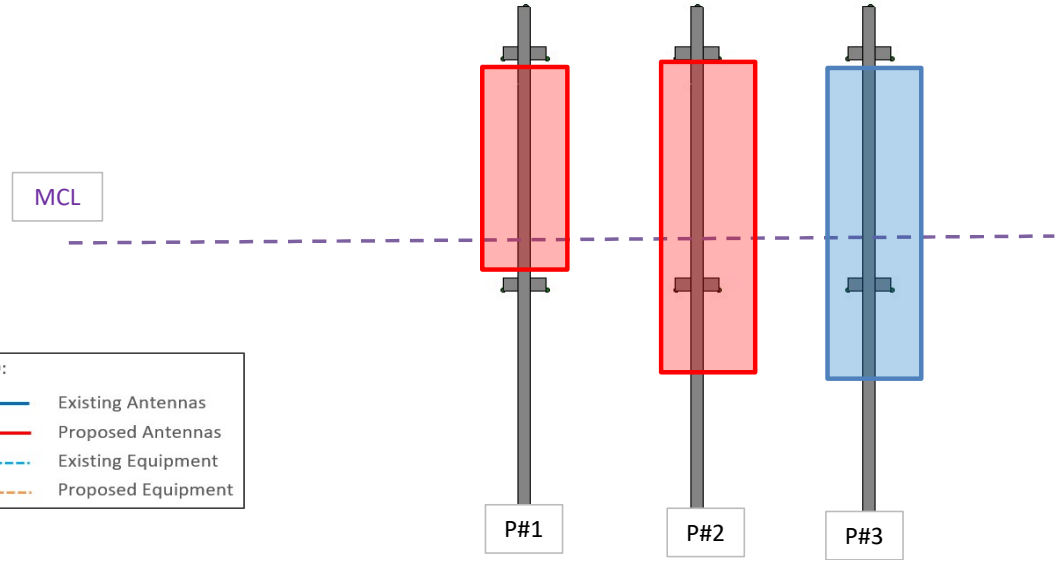
Gamma & Beta Sector

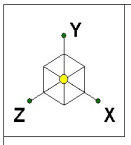
Position	Appurtenance properties						Wind		Ice	Seismic	EPA	
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0° [lbs]	90° [lbs]	Weight [lbs	E_H [lbs]	A_N [sqft]	A_T [sqft]
1	Erricson	AIR6472 B77G B77M	36.3	15.8	9.3	88.6	114.0	70.6	78.3	45.0	4.0	2.3
2	Cellmax	120726	96.0	24.0	8.1	160.0	483.5	201.2	276.9	81.3	16.0	5.4
3	KATHREIN	80010992	105.2	20.0	6.9	144.3	461.0	201.4	255.2	73.4	14.6	5.0
R1	Erricson	4471 B30	12.8	15.8	7.9	66.1	39.9	19.9	27.9	33.6	1.4	0.7
R1	Erricson	4490 B5/B12A	20.6	15.6	7.0	65.0	63.9	29.1	42.5	33.0	2.2	1.0
R2	Erricson	4890 B25/B66	20.6	15.7	7.0	67.2	64.3	29.1	42.7	34.2	2.2	1.0
R2	Erricson	4494 B14/B29	17.5	15.1	5.6	57.3	52.5	19.9	34.4	29.1	1.8	0.7
R2	Raycap	DC9-48-60-24-PC16-EV	16.3	16.6	8.2	35.0	53.8	26.6	36.8	17.8	1.9	0.9

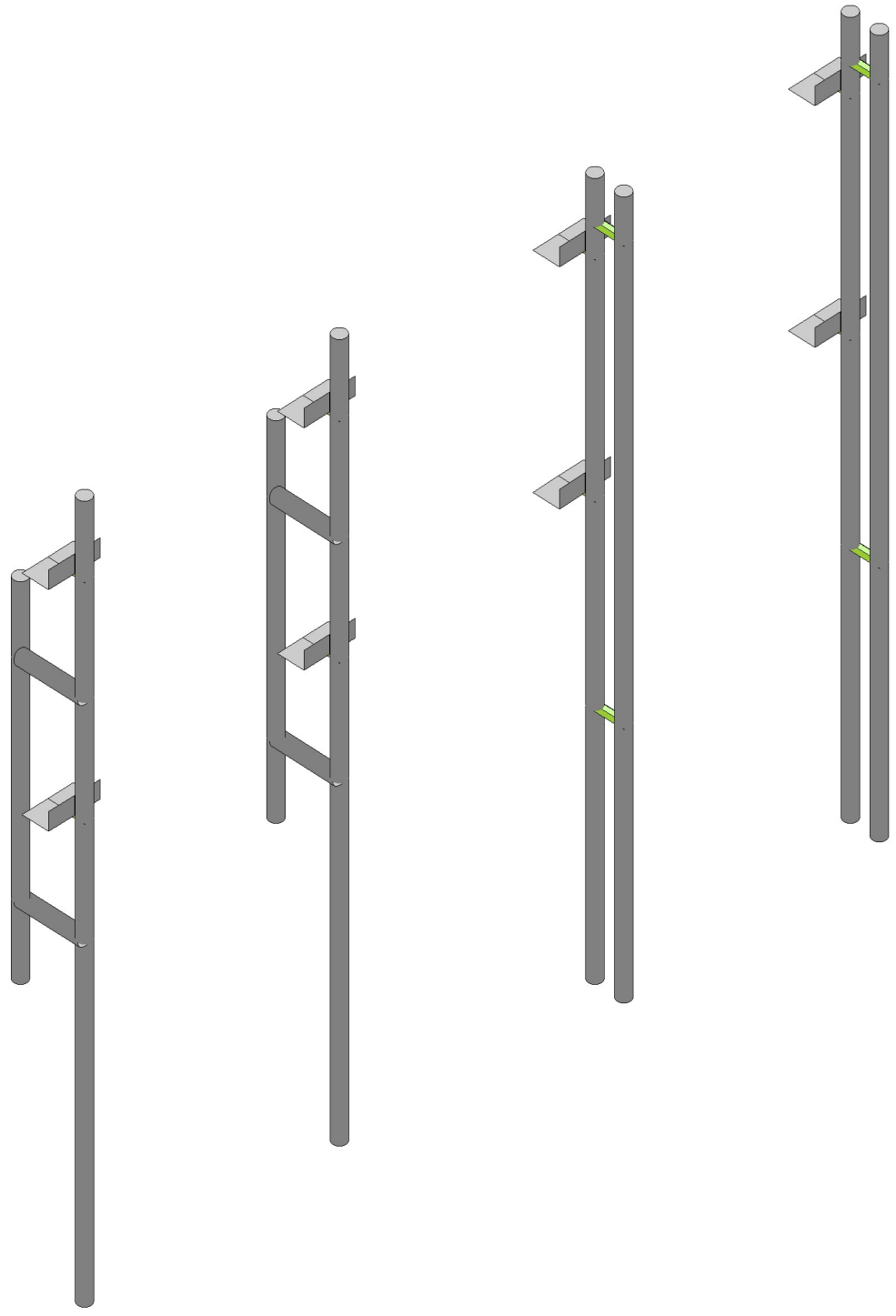
Plan View
(N.T.S.)



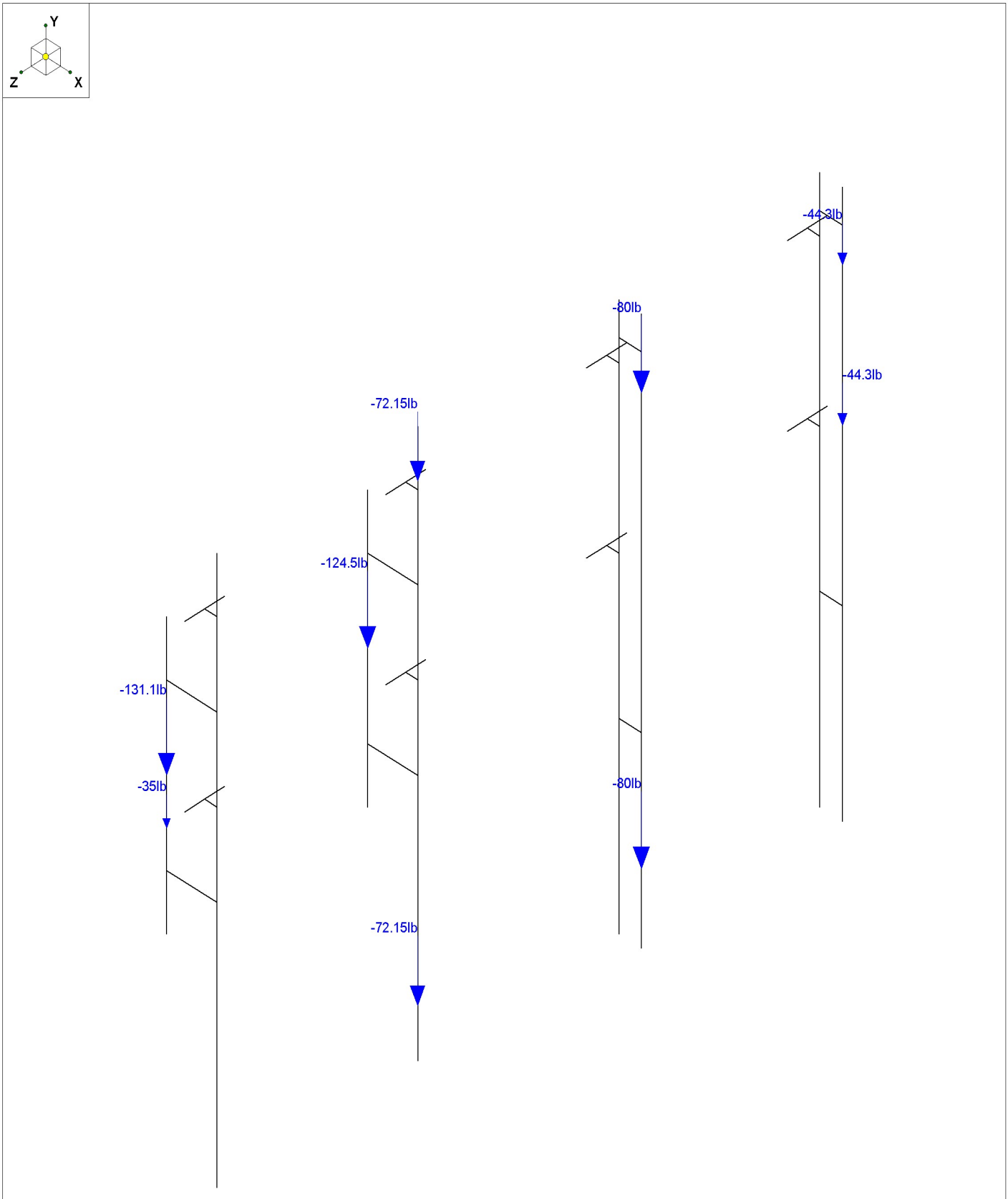
Elevation
(N.T.S.)







Core One Consultants	DOWNTOTOWN PUYALLUP	SK - 1
GV		May 28, 2024 at 7:09 AM
TA48		alpha.r3d



Loads: BLC 2, We

Core One Consultants	DOWNTOTOWN PUYALLUP	SK - 2
GV		May 28, 2024 at 7:09 AM
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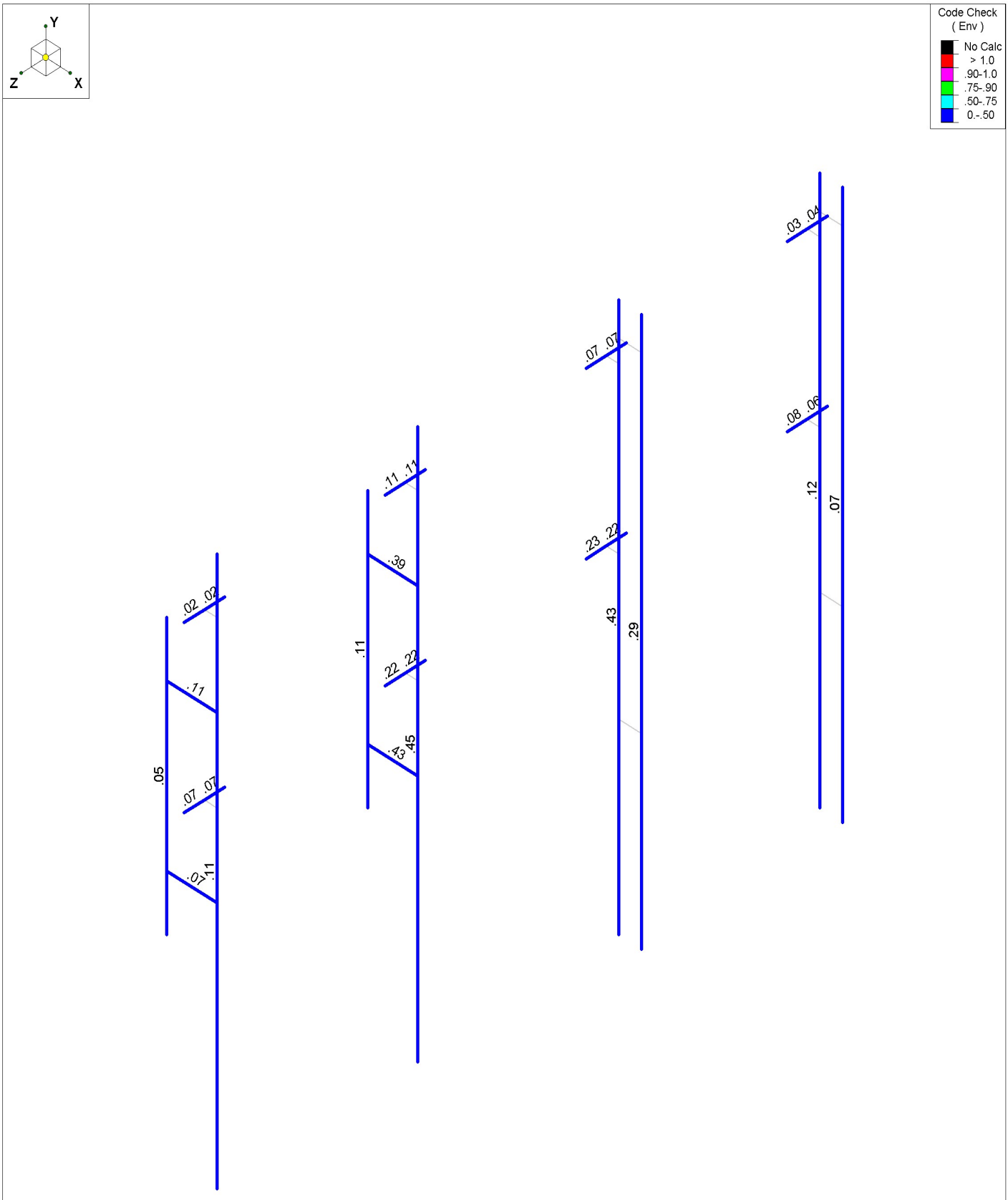

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Core One Consultants	DOWNTOTOWN PUYALLUP	SK - 3
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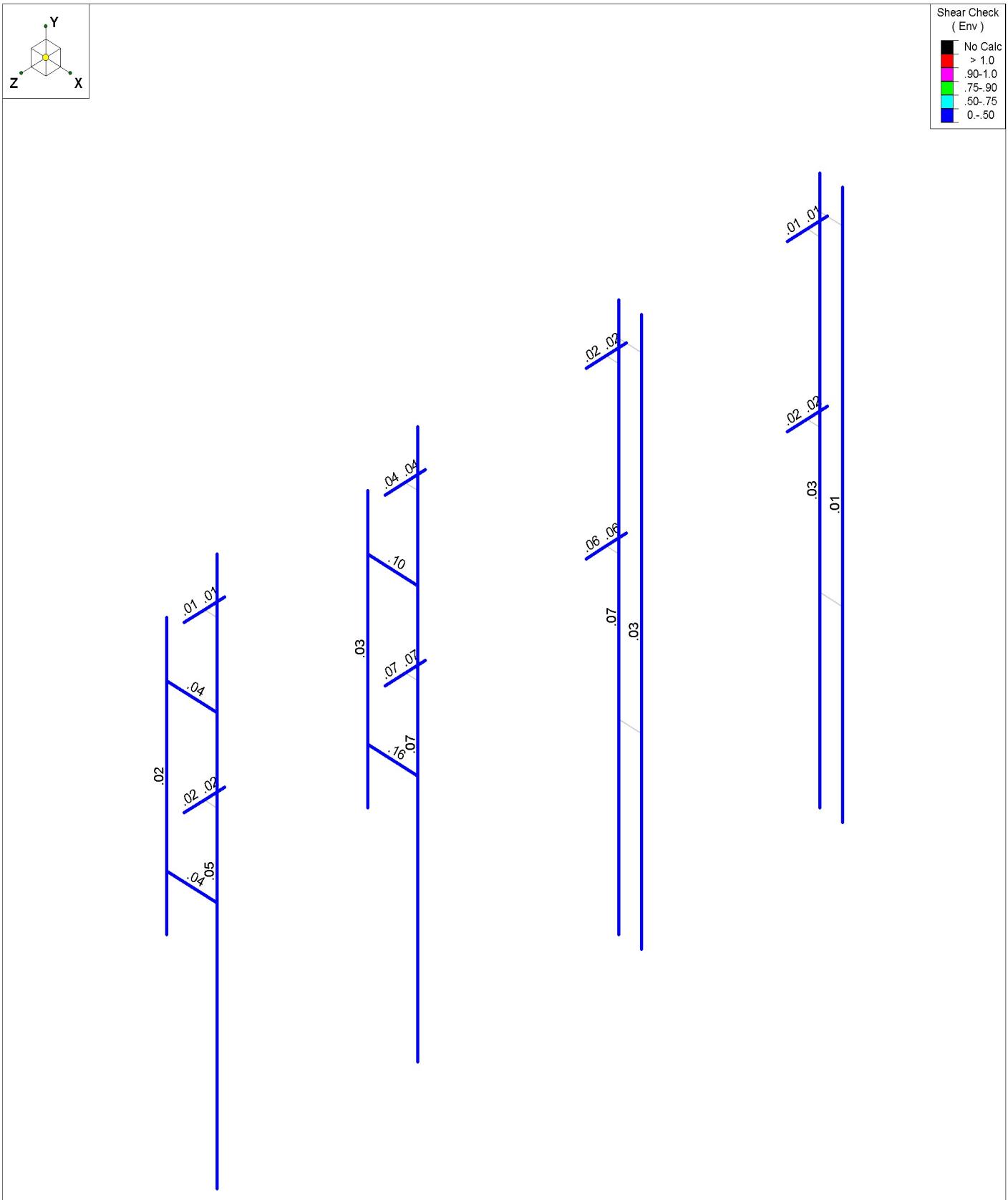
TA48		alpha.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Core One Consultants	DOWNTOTOWN PUYALLUP	SK - 4
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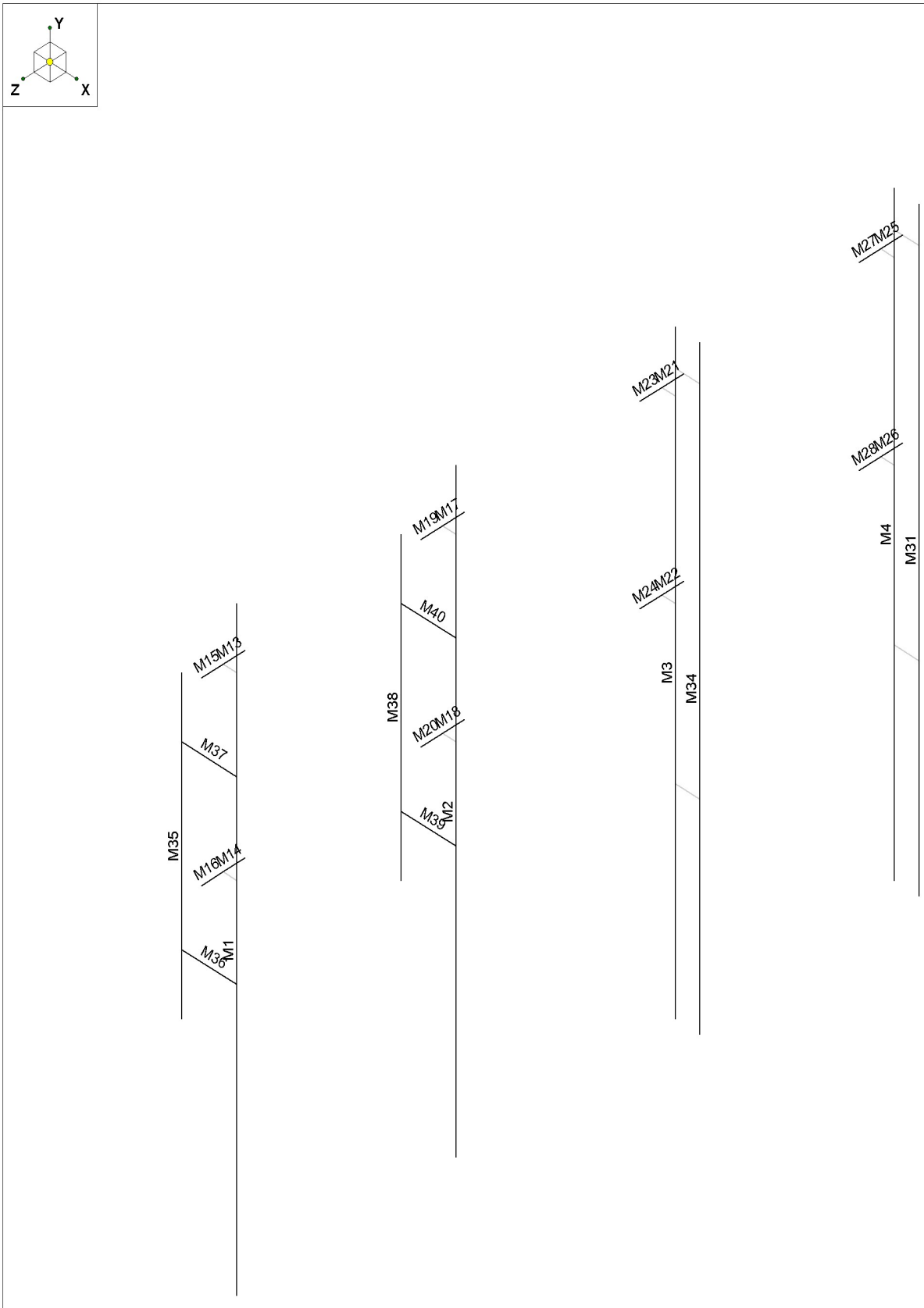

Envelope Only Solution

Core One Consultants	DOWNTOTOWN PUYALLUP	SK - 5
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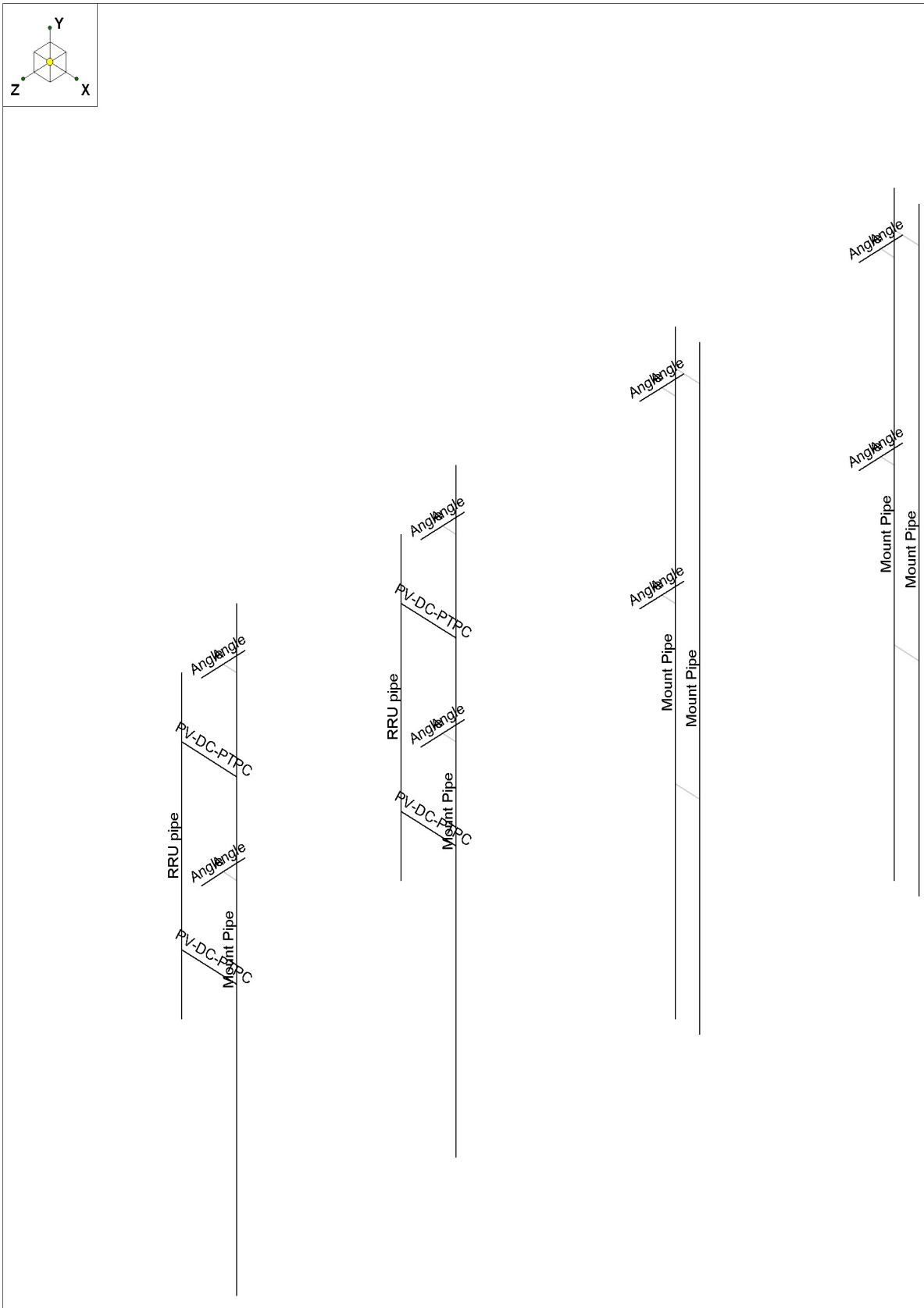

Envelope Only Solution

Core One Consultants	DOWNTOTOWN PUYALLUP	SK - 6
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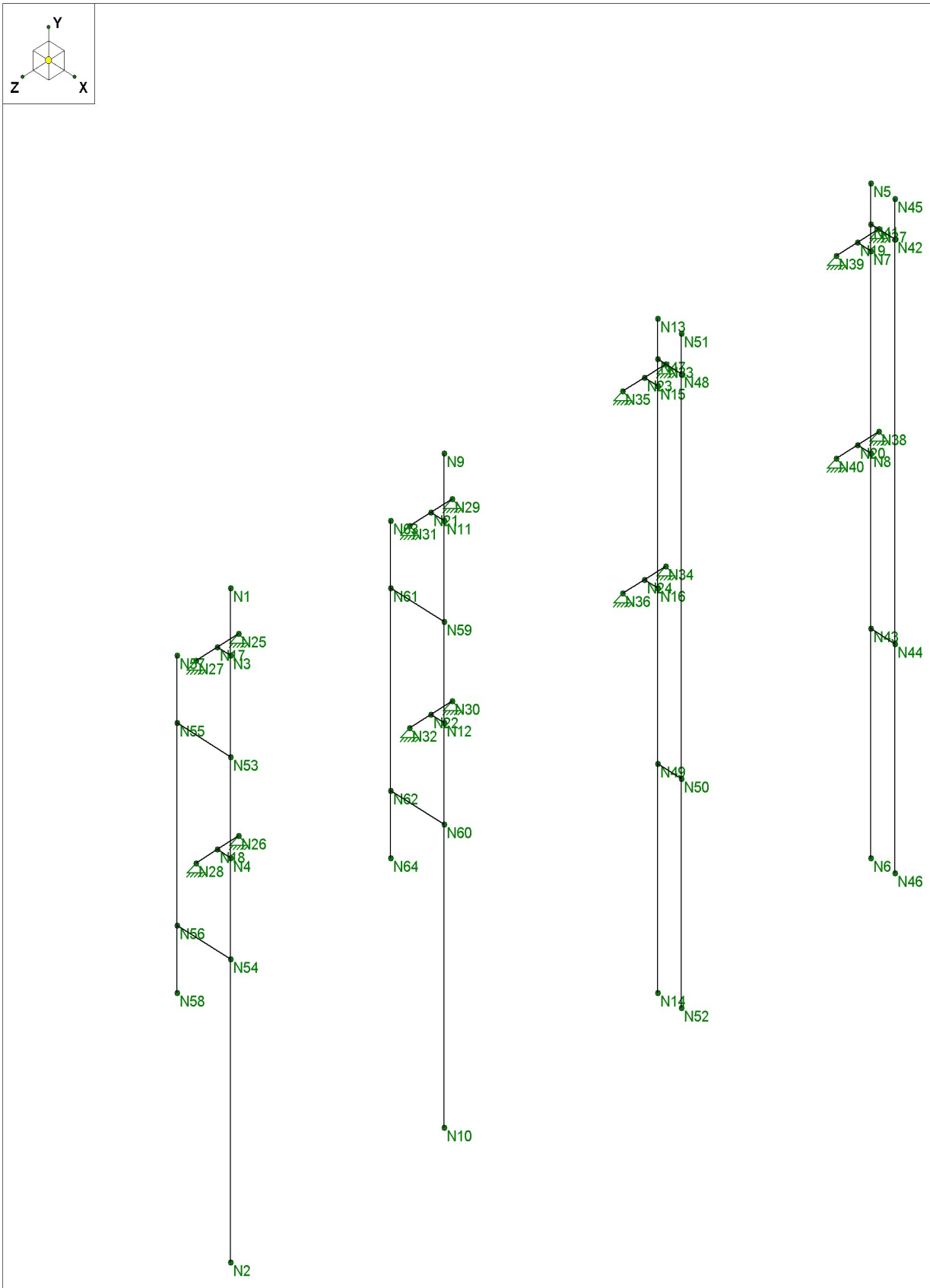


Core One Consultants	DOWNTOTOWN PUYALLUP	SK - 1
GV		May 28, 2024 at 8:17 AM
TA48		alpha.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	Yes
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B RECT	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A500 Gr.C RND	29000	11154	.3	.65	.527	46	1.4	62	1.3
7	A500 Gr.C RECT	29000	11154	.3	.65	.527	50	1.4	62	1.3
8	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
9	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
10	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	MOD Pipe	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Angle	L5x3x1/4	None	None	A36 Gr.36	Typical	1.938	1.438	5.11	.039
4	PV-DC-PTPC	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
5	RRU pipe	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		12	45.6	0
3	Total General		12	45.6	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L5x3x1/4	16	76.8	.042
7	A53 Gr.B	PIPE_2.0	12	888	.257
8	Total HR Steel		28	964.8	.299

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N38	Reaction	Reaction	Reaction			
2	N37	Reaction	Reaction	Reaction			
3	N39	Reaction	Reaction	Reaction			
4	N40	Reaction	Reaction	Reaction			
5	N33	Reaction	Reaction	Reaction			
6	N35	Reaction	Reaction	Reaction			
7	N34	Reaction	Reaction	Reaction			
8	N36	Reaction	Reaction	Reaction			
9	N29	Reaction	Reaction	Reaction			
10	N31	Reaction	Reaction	Reaction			
11	N30	Reaction	Reaction	Reaction			
12	N32	Reaction	Reaction	Reaction			
13	N25	Reaction	Reaction	Reaction			
14	N27	Reaction	Reaction	Reaction			
15	N26	Reaction	Reaction	Reaction			
16	N28	Reaction	Reaction	Reaction			

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Mount Pipe	None	None	A53 Gr.B	Typical
2	M2	N9	N10			Mount Pipe	None	None	A53 Gr.B	Typical
3	M3	N13	N14			Mount Pipe	None	None	A53 Gr.B	Typical
4	M4	N5	N6			Mount Pipe	None	None	A53 Gr.B	Typical
5	M5	N17	N3			RIGID	None	None	RIGID	Typical
6	M6	N18	N4			RIGID	None	None	RIGID	Typical
7	M7	N22	N12			RIGID	None	None	RIGID	Typical
8	M8	N21	N11			RIGID	None	None	RIGID	Typical
9	M9	N24	N16			RIGID	None	None	RIGID	Typical
10	M10	N23	N15			RIGID	None	None	RIGID	Typical
11	M11	N20	N8			RIGID	None	None	RIGID	Typical
12	M12	N19	N7			RIGID	None	None	RIGID	Typical
13	M13	N17	N25		270	Angle	None	None	A36 Gr.36	Typical
14	M14	N18	N26		270	Angle	None	None	A36 Gr.36	Typical
15	M15	N27	N17		270	Angle	None	None	A36 Gr.36	Typical
16	M16	N28	N18		270	Angle	None	None	A36 Gr.36	Typical
17	M17	N21	N29		270	Angle	None	None	A36 Gr.36	Typical
18	M18	N22	N30		270	Angle	None	None	A36 Gr.36	Typical
19	M19	N31	N21		270	Angle	None	None	A36 Gr.36	Typical
20	M20	N32	N22		270	Angle	None	None	A36 Gr.36	Typical
21	M21	N23	N33		270	Angle	None	None	A36 Gr.36	Typical
22	M22	N24	N34		270	Angle	None	None	A36 Gr.36	Typical
23	M23	N35	N23		270	Angle	None	None	A36 Gr.36	Typical
24	M24	N36	N24		270	Angle	None	None	A36 Gr.36	Typical
25	M25	N19	N37		270	Angle	None	None	A36 Gr.36	Typical
26	M26	N20	N38		270	Angle	None	None	A36 Gr.36	Typical
27	M27	N39	N19		270	Angle	None	None	A36 Gr.36	Typical
28	M28	N40	N20		270	Angle	None	None	A36 Gr.36	Typical
29	M29	N41	N42			RIGID	None	None	RIGID	Typical
30	M30	N43	N44			RIGID	None	None	RIGID	Typical
31	M31	N45	N46			Mount Pipe	None	None	A53 Gr.B	Typical
32	M32	N47	N48			RIGID	None	None	RIGID	Typical
33	M33	N49	N50			RIGID	None	None	RIGID	Typical
34	M34	N51	N52			Mount Pipe	None	None	A53 Gr.B	Typical
35	M35	N57	N58			RRU pipe	None	None	A53 Gr.B	Typical
36	M36	N56	N54			PV-DC-PTPC	None	None	A53 Gr.B	Typical
37	M37	N55	N53			PV-DC-PTPC	None	None	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
38	M38	N63	N64			RRU pipe	None	None	A53 Gr.B	Typical
39	M39	N62	N60			PV-DC-PTPC	None	None	A53 Gr.B	Typical
40	M40	N61	N59			PV-DC-PTPC	None	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13						Yes	** NA **			None
14	M14						Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28						Yes	** NA **			None
29	M29						Yes	** NA **			None
30	M30						Yes	** NA **			None
31	M31						Yes	** NA **			None
32	M32						Yes	** NA **			None
33	M33						Yes	** NA **			None
34	M34						Yes	** NA **			None
35	M35						Yes	** NA **			None
36	M36						Yes	** NA **			None
37	M37						Yes	** NA **			None
38	M38						Yes	** NA **			None
39	M39						Yes	** NA **			None
40	M40						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Mount Pipe	120			Lbyy						Lateral
2	M2	Mount Pipe	120			Lbyy						Lateral
3	M3	Mount Pipe	120			Lbyy						Lateral
4	M4	Mount Pipe	120			Lbyy						Lateral
5	M13	Angle	4.8			Lbyy						Lateral
6	M14	Angle	4.8			Lbyy						Lateral
7	M15	Angle	4.8			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
8	M16	Angle	4.8			Lbyy						Lateral
9	M17	Angle	4.8			Lbyy						Lateral
10	M18	Angle	4.8			Lbyy						Lateral
11	M19	Angle	4.8			Lbyy						Lateral
12	M20	Angle	4.8			Lbyy						Lateral
13	M21	Angle	4.8			Lbyy						Lateral
14	M22	Angle	4.8			Lbyy						Lateral
15	M23	Angle	4.8			Lbyy						Lateral
16	M24	Angle	4.8			Lbyy						Lateral
17	M25	Angle	4.8			Lbyy						Lateral
18	M26	Angle	4.8			Lbyy						Lateral
19	M27	Angle	4.8			Lbyy						Lateral
20	M28	Angle	4.8			Lbyy						Lateral
21	M31	Mount Pipe	120			Lbyy						Lateral
22	M34	Mount Pipe	120			Lbyy						Lateral
23	M35	RRU pipe	60									Lateral
24	M36	PV-DC-PTPC	12									Lateral
25	M37	PV-DC-PTPC	12									Lateral
26	M38	RRU pipe	60									Lateral
27	M39	PV-DC-PTPC	12									Lateral
28	M40	PV-DC-PTPC	12									Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self We	DL		-1.1						
2	We	DL					11			
3	Ice We	DL					11	12		
4	W0	WL					11	12		
5	W30	WL					22	24		
6	W45	WL					22	24		
7	W60	WL					22	24		
8	W90	WL					11	12		
9	W120	WL					22	24		
10	W135	WL					22	24		
11	W150	WL					22	24		
12	W0 + Ice	WL					11	12		
13	W30 + Ice	WL					22	24		
14	W45 + Ice	WL					22	24		
15	W60 + Ice	WL					22	24		
16	W90 + Ice	WL					11	12		
17	W120 + Ice	WL					22	24		
18	W135 + Ice	WL					22	24		
19	W150 + Ice	WL					22	24		
20	250lbs LM 1	LL								
21	250lbs LM 2	LL								
22	250lbs LM 3	LL								
23	250lbs LM 4	LL								
24	250lbs LV 5	LL								
25	250lbs LV 6	LL								
26	E0	EL	-.51			1	11			
27	E90	EL			.51	1	11			

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	Dead	Yes	Y		1	1.4	2	1.4	0		0													
2	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	1	0													
3	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	1	0													
4	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	1	0													
5	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	1	0													
6	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	1	0													
7	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	1	0													
8	Dead + Wi...	Yes	Y		1	1.2	2	1.2	10	1	0													
9	Dead + Wi...	Yes	Y		1	1.2	2	1.2	11	1	0													
10	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	-1	0													
11	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	-1	0													
12	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	-1	0													
13	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	-1	0													
14	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	-1	0													
15	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	-1	0													
16	Dead + Wi...	Yes	Y		1	1.2	2	1.2	10	-1	0													
17	Dead + Wi...	Yes	Y		1	1.2	2	1.2	11	-1	0													
18	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	1	3	1												
19	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	1	3	1												
20	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	1	3	1												
21	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	1	3	1												
22	Dead + Ic...	Yes	Y		1	1.2	2	1.2	16	1	3	1												
23	Dead + Ic...	Yes	Y		1	1.2	2	1.2	17	1	3	1												
24	Dead + Ic...	Yes	Y		1	1.2	2	1.2	18	1	3	1												
25	Dead + Ic...	Yes	Y		1	1.2	2	1.2	19	1	3	1												
26	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	-1	3	1												
27	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	-1	3	1												
28	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	-1	3	1												
29	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	-1	3	1												
30	Dead + Ic...	Yes	Y		1	1.2	2	1.2	16	-1	3	1												
31	Dead + Ic...	Yes	Y		1	1.2	2	1.2	17	-1	3	1												
32	Dead + Ic...	Yes	Y		1	1.2	2	1.2	18	-1	3	1												
33	Dead + Ic...	Yes	Y		1	1.2	2	1.2	19	-1	3	1												
34	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	4	.094												
35	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	5	.094												
36	Dead + L...	Yes	Y		1	1.2	2		20	1.5	6	.094												
37	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	7	.094												
38	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	8	.094												
39	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	9	.094												
40	Dead + L...	Yes	Y		1	1.2	2		20	1.5	10	.094												
41	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	11	.094												
42	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	4	-.094												
43	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	5	-.094												
44	Dead + L...	Yes	Y		1	1.2	2		20	1.5	6	-.094												
45	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	7	-.094												
46	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	8	-.094												
47	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	9	-.094												
48	Dead + L...	Yes	Y		1	1.2	2		20	1.5	10	-.094												
49	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	11	-.094												
50	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	4	.094												
51	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	5	.094												
52	Dead + L...	Yes	Y		1	1.2	2		21	1.5	6	.094												
53	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	7	.094												
54	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	8	.094												
55	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	9	.094												
56	Dead + L...	Yes	Y		1	1.2	2		21	1.5	10	.094												
57	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	11	.094												
58	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	4	-.094												
59	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	5	-.094												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
60	Dead + L...	Yes	Y		1	1.2	2		21	1.5	6	-.094												
61	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	7	-.094												
62	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	8	-.094												
63	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	9	-.094												
64	Dead + L...	Yes	Y		1	1.2	2		21	1.5	10	-.094												
65	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	11	-.094												
66	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	4	.094												
67	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	5	.094												
68	Dead + L...	Yes	Y		1	1.2	2		22	1.5	6	.094												
69	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	7	.094												
70	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	8	.094												
71	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	9	.094												
72	Dead + L...	Yes	Y		1	1.2	2		22	1.5	10	.094												
73	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	11	.094												
74	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	4	-.094												
75	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	5	-.094												
76	Dead + L...	Yes	Y		1	1.2	2		22	1.5	6	-.094												
77	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	7	-.094												
78	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	8	-.094												
79	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	9	-.094												
80	Dead + L...	Yes	Y		1	1.2	2		22	1.5	10	-.094												
81	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	11	-.094												
82	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	4	.094												
83	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	5	.094												
84	Dead + L...	Yes	Y		1	1.2	2		23	1.5	6	.094												
85	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	7	.094												
86	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	8	.094												
87	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	9	.094												
88	Dead + L...	Yes	Y		1	1.2	2		23	1.5	10	.094												
89	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	11	.094												
90	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	4	-.094												
91	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	5	-.094												
92	Dead + L...	Yes	Y		1	1.2	2		23	1.5	6	-.094												
93	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	7	-.094												
94	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	8	-.094												
95	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	9	-.094												
96	Dead + L...	Yes	Y		1	1.2	2		23	1.5	10	-.094												
97	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	11	-.094												
98	Dead + LV...	Yes	Y		1	1.2	2	1.2	24	1.5	0													
99	Dead + LV...	Yes	Y		1	1.2	2	1.2	25	1.5	0													
100	Service 60...	Yes	Y		1	1	2	1	4	.375	0													
101	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	1	23													
102	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.866	23	.5												
103	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.707	23	.707												
104	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.5	23	.866												
105	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22		23	1												
106	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.5	23	.866												
107	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.707	23	.707												
108	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.866	23	.5												
109	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-1	23													
110	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.866	23	-.5												
111	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.707	23	-.707												
112	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.5	23	-.866												
113	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22		23	-1												
114	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.5	23	-.866												
115	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.707	23	-.707												
116	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.866	23	-.5												

Joint Loads and Enforced Displacements (BLC 26 : E0)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1				0

Joint Loads and Enforced Displacements (BLC 27 : E90)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1				0

Member Point Loads (BLC 2 : We)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	Y	-44.3	14.85
2	M34	Y	-80	15
3	M2	Y	-72.15	10.4
4	M31	Y	-44.3	45.15
5	M34	Y	-80	105
6	M2	Y	-72.15	109.6
7	M35	Y	-66.1	30
8	M35	Y	-65	30
9	M38	Y	-67.2	30
10	M38	Y	-57.3	30
11	M35	Y	-35	40

Member Point Loads (BLC 3 : Ice We)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	Y	-39.335	14.85
2	M34	Y	-139.029	15
3	M2	Y	-128.142	10.4
4	M31	Y	-39.335	45.15
5	M34	Y	-139.029	105
6	M2	Y	-128.142	109.6
7	M35	Y	-27.998	30
8	M35	Y	-42.71	30
9	M38	Y	-42.925	30
10	M38	Y	-34.597	30
11	M35	Y	-36.929	40

Member Point Loads (BLC 4 : W0)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	-57.502	14.85
2	M34	X	-243.829	15
3	M2	X	-232.507	10.4
4	M31	X	-57.502	45.15
5	M34	X	-243.829	105
6	M2	X	-232.507	109.6
7	M35	X	-40.266	30
8	M35	X	-64.438	30
9	M38	X	-64.851	30
10	M38	X	-52.987	30
11	M35	X	-54.291	40

Member Point Loads (BLC 5 : W30)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	-45.058	14.85
2	M34	X	-180.339	15
3	M2	X	-173.01	10.4
4	M31	X	-45.058	45.15

Member Point Loads (BLC 5 : W30) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
5	M34	X	-180.339	105
6	M2	X	-173.01	109.6
7	M35	X	-30.51	30
8	M35	X	-48.217	30
9	M38	X	-48.485	30
10	M38	X	-38.769	30
11	M35	X	-41.073	40
12	M31	Z	26.014	14.85
13	M34	Z	104.119	15
14	M2	Z	99.887	10.4
15	M31	Z	26.014	45.15
16	M34	Z	104.119	105
17	M2	Z	99.887	109.6
18	M35	Z	17.615	30
19	M35	Z	27.838	30
20	M38	Z	27.993	30
21	M38	Z	22.383	30
22	M35	Z	23.713	40

Member Point Loads (BLC 6 : W45)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	-32.919	14.85
2	M34	X	-122.079	15
3	M2	X	-118.116	10.4
4	M31	X	-32.919	45.15
5	M34	X	-122.079	105
6	M2	X	-118.116	109.6
7	M35	X	-21.35	30
8	M35	X	-33.173	30
9	M38	X	-33.319	30
10	M38	X	-25.842	30
11	M35	X	-28.682	40
12	M31	Z	32.919	14.85
13	M34	Z	122.079	15
14	M2	Z	118.116	10.4
15	M31	Z	32.919	45.15
16	M34	Z	122.079	105
17	M2	Z	118.116	109.6
18	M35	Z	21.35	30
19	M35	Z	33.173	30
20	M38	Z	33.319	30
21	M38	Z	25.842	30
22	M35	Z	28.682	40

Member Point Loads (BLC 7 : W60)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	-20.54	14.85
2	M34	X	-68.527	15
3	M2	X	-67.154	10.4
4	M31	X	-20.54	45.15
5	M34	X	-68.527	105
6	M2	X	-67.154	109.6
7	M35	X	-12.578	30
8	M35	X	-19.076	30
9	M38	X	-19.127	30
10	M38	X	-14.163	30
11	M35	X	-16.849	40
12	M31	Z	35.576	14.85

Member Point Loads (BLC 7 : W60) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
13	M34	Z	118.692	15
14	M2	Z	116.314	10.4
15	M31	Z	35.576	45.15
16	M34	Z	118.692	105
17	M2	Z	116.314	109.6
18	M35	Z	21.787	30
19	M35	Z	33.04	30
20	M38	Z	33.129	30
21	M38	Z	24.531	30
22	M35	Z	29.184	40

Member Point Loads (BLC 8 : W90)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	Z	35.605	14.85
2	M34	Z	101.462	15
3	M2	Z	101.575	10.4
4	M31	Z	35.605	45.15
5	M34	Z	101.462	105
6	M2	Z	101.575	109.6
7	M35	Z	20.12	30
8	M35	Z	29.389	30
9	M38	Z	29.389	30
10	M38	Z	20.106	30
11	M35	Z	26.834	40

Member Point Loads (BLC 9 : W120)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	20.54	14.85
2	M34	X	68.527	15
3	M2	X	67.154	10.4
4	M31	X	20.54	45.15
5	M34	X	68.527	105
6	M2	X	67.154	109.6
7	M35	X	12.578	30
8	M35	X	19.076	30
9	M38	X	19.127	30
10	M38	X	14.163	30
11	M35	X	16.849	40
12	M31	Z	35.576	14.85
13	M34	Z	118.692	15
14	M2	Z	116.314	10.4
15	M31	Z	35.576	45.15
16	M34	Z	118.692	105
17	M2	Z	116.314	109.6
18	M35	Z	21.787	30
19	M35	Z	33.04	30
20	M38	Z	33.129	30
21	M38	Z	24.531	30
22	M35	Z	29.184	40

Member Point Loads (BLC 10 : W135)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	32.919	14.85
2	M34	X	122.079	15
3	M2	X	118.116	10.4
4	M31	X	32.919	45.15
5	M34	X	122.079	105

Member Point Loads (BLC 10 : W135) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
6	M2	X	118.116	109.6
7	M35	X	21.35	30
8	M35	X	33.173	30
9	M38	X	33.319	30
10	M38	X	25.842	30
11	M35	X	28.682	40
12	M31	Z	32.919	14.85
13	M34	Z	122.079	15
14	M2	Z	118.116	10.4
15	M31	Z	32.919	45.15
16	M34	Z	122.079	105
17	M2	Z	118.116	109.6
18	M35	Z	21.35	30
19	M35	Z	33.173	30
20	M38	Z	33.319	30
21	M38	Z	25.842	30
22	M35	Z	28.682	40

Member Point Loads (BLC 11 : W150)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	45.058	14.85
2	M34	X	180.339	15
3	M2	X	173.01	10.4
4	M31	X	45.058	45.15
5	M34	X	180.339	105
6	M2	X	173.01	109.6
7	M35	X	30.51	30
8	M35	X	48.217	30
9	M38	X	48.485	30
10	M38	X	38.769	30
11	M35	X	41.073	40
12	M31	Z	26.014	14.85
13	M34	Z	104.119	15
14	M2	Z	99.887	10.4
15	M31	Z	26.014	45.15
16	M34	Z	104.119	105
17	M2	Z	99.887	109.6
18	M35	Z	17.615	30
19	M35	Z	27.838	30
20	M38	Z	27.993	30
21	M38	Z	22.383	30
22	M35	Z	23.713	40

Member Point Loads (BLC 12 : W0 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	-6.475	14.85
2	M34	X	-25.213	15
3	M2	X	-24.26	10.4
4	M31	X	-6.475	45.15
5	M34	X	-25.213	105
6	M2	X	-24.26	109.6
7	M35	X	-5.001	30
8	M35	X	-7.574	30
9	M38	X	-7.617	30
10	M38	X	-6.357	30
11	M35	X	-6.491	40

Member Point Loads (BLC 13 : W30 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	-5.128	14.85
2	M34	X	-18.906	15
3	M2	X	-18.326	10.4
4	M31	X	-5.128	45.15
5	M34	X	-18.906	105
6	M2	X	-18.326	109.6
7	M35	X	-3.853	30
8	M35	X	-5.764	30
9	M38	X	-5.792	30
10	M38	X	-4.747	30
11	M35	X	-4.992	40
12	M31	Z	2.961	14.85
13	M34	Z	10.916	15
14	M2	Z	10.58	10.4
15	M31	Z	2.961	45.15
16	M34	Z	10.916	105
17	M2	Z	10.58	109.6
18	M35	Z	2.225	30
19	M35	Z	3.328	30
20	M38	Z	3.344	30
21	M38	Z	2.741	30
22	M35	Z	2.882	40

Member Point Loads (BLC 14 : W45 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	-3.795	14.85
2	M34	X	-13.045	15
3	M2	X	-12.771	10.4
4	M31	X	-3.795	45.15
5	M34	X	-13.045	105
6	M2	X	-12.771	109.6
7	M35	X	-2.757	30
8	M35	X	-4.057	30
9	M38	X	-4.072	30
10	M38	X	-3.257	30
11	M35	X	-3.562	40
12	M31	Z	3.795	14.85
13	M34	Z	13.045	15
14	M2	Z	12.771	10.4
15	M31	Z	3.795	45.15
16	M34	Z	13.045	105
17	M2	Z	12.771	109.6
18	M35	Z	2.757	30
19	M35	Z	4.057	30
20	M38	Z	4.072	30
21	M38	Z	3.257	30
22	M35	Z	3.562	40

Member Point Loads (BLC 15 : W60 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	-2.407	14.85
2	M34	X	-7.533	15
3	M2	X	-7.481	10.4
4	M31	X	-2.407	45.15
5	M34	X	-7.533	105
6	M2	X	-7.481	109.6
7	M35	X	-1.674	30
8	M35	X	-2.41	30

Member Point Loads (BLC 15 : W60 + Ice) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
9	M38	X	-2.415	30
10	M38	X	-1.866	30
11	M35	X	-2.155	40
12	M31	Z	4.169	14.85
13	M34	Z	13.048	15
14	M2	Z	12.957	10.4
15	M31	Z	4.169	45.15
16	M34	Z	13.048	105
17	M2	Z	12.957	109.6
18	M35	Z	2.899	30
19	M35	Z	4.173	30
20	M38	Z	4.183	30
21	M38	Z	3.232	30
22	M35	Z	3.732	40

Member Point Loads (BLC 16 : W90 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	Z	4.26	14.85
2	M34	Z	11.685	15
3	M2	Z	11.861	10.4
4	M31	Z	4.26	45.15
5	M34	Z	11.685	105
6	M2	Z	11.861	109.6
7	M35	Z	2.797	30
8	M35	Z	3.901	30
9	M38	Z	3.901	30
10	M38	Z	2.856	30
11	M35	Z	3.583	40

Member Point Loads (BLC 17 : W120 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	2.407	14.85
2	M34	X	7.533	15
3	M2	X	7.481	10.4
4	M31	X	2.407	45.15
5	M34	X	7.533	105
6	M2	X	7.481	109.6
7	M35	X	1.674	30
8	M35	X	2.41	30
9	M38	X	2.415	30
10	M38	X	1.866	30
11	M35	X	2.155	40
12	M31	Z	4.169	14.85
13	M34	Z	13.048	15
14	M2	Z	12.957	10.4
15	M31	Z	4.169	45.15
16	M34	Z	13.048	105
17	M2	Z	12.957	109.6
18	M35	Z	2.899	30
19	M35	Z	4.173	30
20	M38	Z	4.183	30
21	M38	Z	3.232	30
22	M35	Z	3.732	40

Member Point Loads (BLC 18 : W135 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	3.795	14.85

Member Point Loads (BLC 18 : W135 + Ice) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
2	M34	X	13.045	15
3	M2	X	12.771	10.4
4	M31	X	3.795	45.15
5	M34	X	13.045	105
6	M2	X	12.771	109.6
7	M35	X	2.757	30
8	M35	X	4.057	30
9	M38	X	4.072	30
10	M38	X	3.257	30
11	M35	X	3.562	40
12	M31	Z	3.795	14.85
13	M34	Z	13.045	15
14	M2	Z	12.771	10.4
15	M31	Z	3.795	45.15
16	M34	Z	13.045	105
17	M2	Z	12.771	109.6
18	M35	Z	2.757	30
19	M35	Z	4.057	30
20	M38	Z	4.072	30
21	M38	Z	3.257	30
22	M35	Z	3.562	40

Member Point Loads (BLC 19 : W150 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	5.128	14.85
2	M34	X	18.906	15
3	M2	X	18.326	10.4
4	M31	X	5.128	45.15
5	M34	X	18.906	105
6	M2	X	18.326	109.6
7	M35	X	3.853	30
8	M35	X	5.764	30
9	M38	X	5.792	30
10	M38	X	4.747	30
11	M35	X	4.992	40
12	M31	Z	2.961	14.85
13	M34	Z	10.916	15
14	M2	Z	10.58	10.4
15	M31	Z	2.961	45.15
16	M34	Z	10.916	105
17	M2	Z	10.58	109.6
18	M35	Z	2.225	30
19	M35	Z	3.328	30
20	M38	Z	3.344	30
21	M38	Z	2.741	30
22	M35	Z	2.882	40

Member Point Loads (BLC 26 : E0)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	X	-22.522	14.85
2	M34	X	-40.672	15
3	M2	X	-36.681	10.4
4	M31	X	-22.522	45.15
5	M34	X	-40.672	105
6	M2	X	-36.681	109.6
7	M35	X	-33.605	30
8	M35	X	-33.046	30
9	M38	X	-34.164	30

Member Point Loads (BLC 26 : E0) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
10	M38	X	-29.131	30
11	M35	X	-17.794	40

Member Point Loads (BLC 27 : E90)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M31	Z	22.522	14.85
2	M34	Z	40.672	15
3	M2	Z	36.681	10.4
4	M31	Z	22.522	45.15
5	M34	Z	40.672	105
6	M2	Z	36.681	109.6
7	M35	Z	33.605	30
8	M35	Z	33.046	30
9	M38	Z	34.164	30
10	M38	Z	29.131	30
11	M35	Z	17.794	40

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
No Data to Print ...						

Envelope Joint Reactions

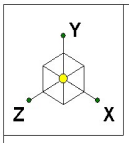
	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N38	max	144.579	17	291.134	7	60.234	14	0	116	0	116	0	116
2		min	-105.318	9	-159.804	15	-60.234	6	0	1	0	1	0	1
3	N37	max	45.248	14	115.382	4	32.519	14	0	116	0	116	0	116
4		min	-84.529	6	-35.096	12	-32.519	6	0	1	0	1	0	1
5	N39	max	45.248	6	109.43	17	32.519	14	0	116	0	116	0	116
6		min	-84.529	14	-29.163	9	-32.519	6	0	1	0	1	0	1
7	N40	max	161.994	4	291.134	13	60.234	14	0	116	0	116	0	116
8		min	-122.774	12	-159.804	5	-60.234	6	0	1	0	1	0	1
9	N33	max	132.013	12	241.6	2	35.725	15	0	116	0	116	0	116
10		min	-193.901	4	-122.737	10	-35.725	5	0	1	0	1	0	1
11	N35	max	131.261	9	241.6	2	35.725	15	0	116	0	116	0	116
12		min	-193.549	17	-122.737	10	-35.725	5	0	1	0	1	0	1
13	N34	max	464.043	17	831.636	7	133.342	13	0	116	0	116	0	116
14		min	-406.726	9	-652.279	15	-133.342	7	0	1	0	1	0	1
15	N36	max	464.043	3	862.159	12	133.342	13	0	116	0	116	0	116
16		min	-406.726	11	-690.083	4	-133.342	7	0	1	0	1	0	1
17	N29	max	90.846	10	531.284	2	33.824	12	0	116	0	116	0	116
18		min	-65.218	2	-463.018	10	-33.791	7	0	1	0	1	0	1
19	N31	max	90.846	10	531.284	2	33.824	12	0	116	0	116	0	116
20		min	-65.218	2	-463.018	10	-33.791	7	0	1	0	1	0	1
21	N30	max	373.788	2	1055.97	9	128.736	15	0	116	0	116	0	116
22		min	-399.417	10	-708.73	17	-128.736	5	0	1	0	1	0	1
23	N32	max	373.788	2	1055.97	11	128.736	15	0	116	0	116	0	116
24		min	-399.417	10	-708.73	3	-128.736	5	0	1	0	1	0	1
25	N25	max	62.946	9	66.95	2	8.445	14	0	116	0	116	0	116
26		min	-10.393	17	-82.653	10	-8.445	6	0	1	0	1	0	1
27	N27	max	67.81	12	66.95	2	8.445	14	0	116	0	116	0	116
28		min	-15.26	4	-82.653	10	-8.445	6	0	1	0	1	0	1
29	N26	max	133.034	3	324.934	7	78.842	14	0	116	0	116	0	116
30		min	-185.702	11	-18.107	15	-78.842	6	0	1	0	1	0	1
31	N28	max	133.034	17	332.612	12	78.842	14	0	116	0	116	0	116
32		min	-185.702	9	-25.767	4	-78.842	6	0	1	0	1	0	1

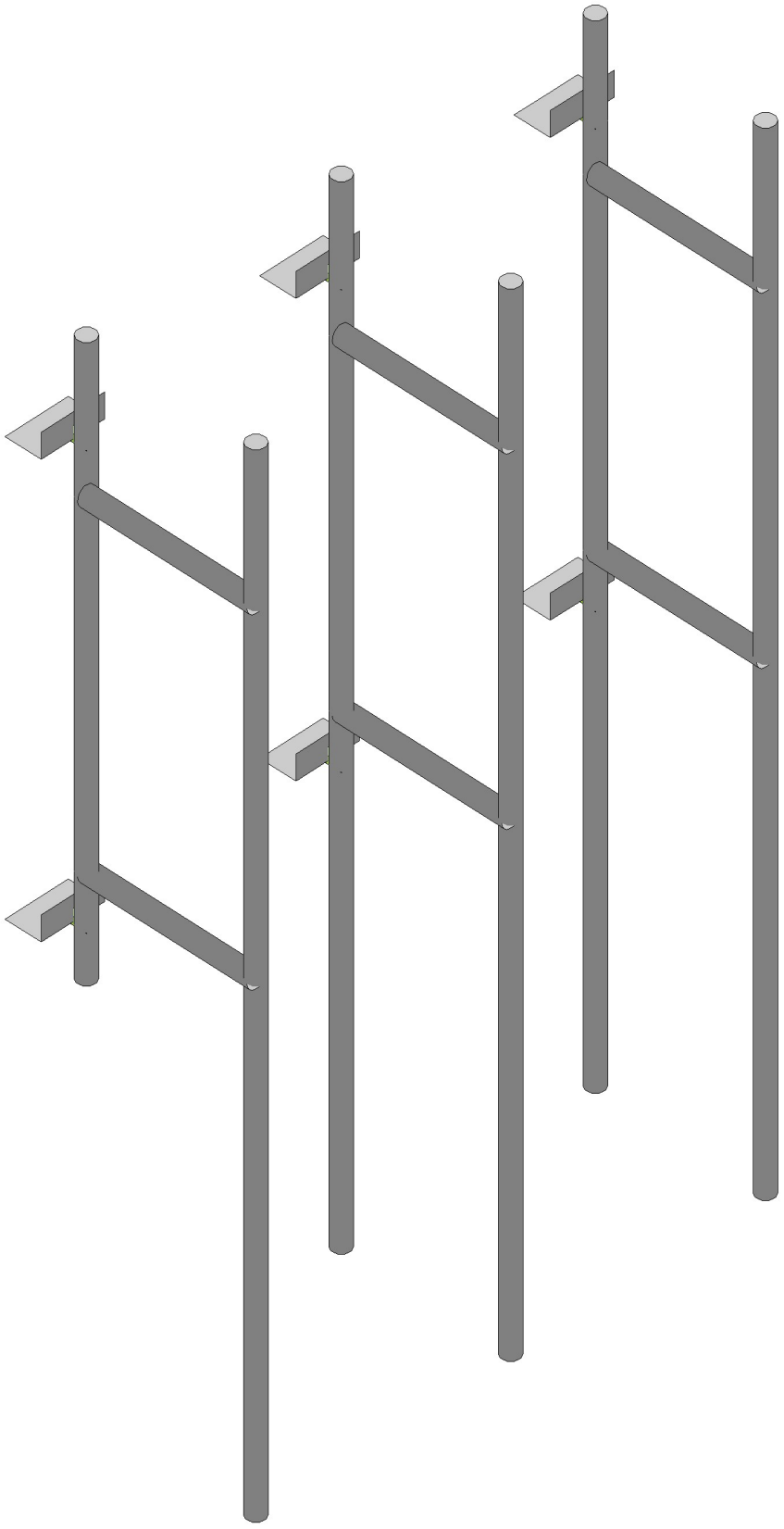
Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
33	Totals:	max	1693.106	2	2304.373	18	997.535	13						
34		min	-1693.107	10	394.728	44	-997.535	7						

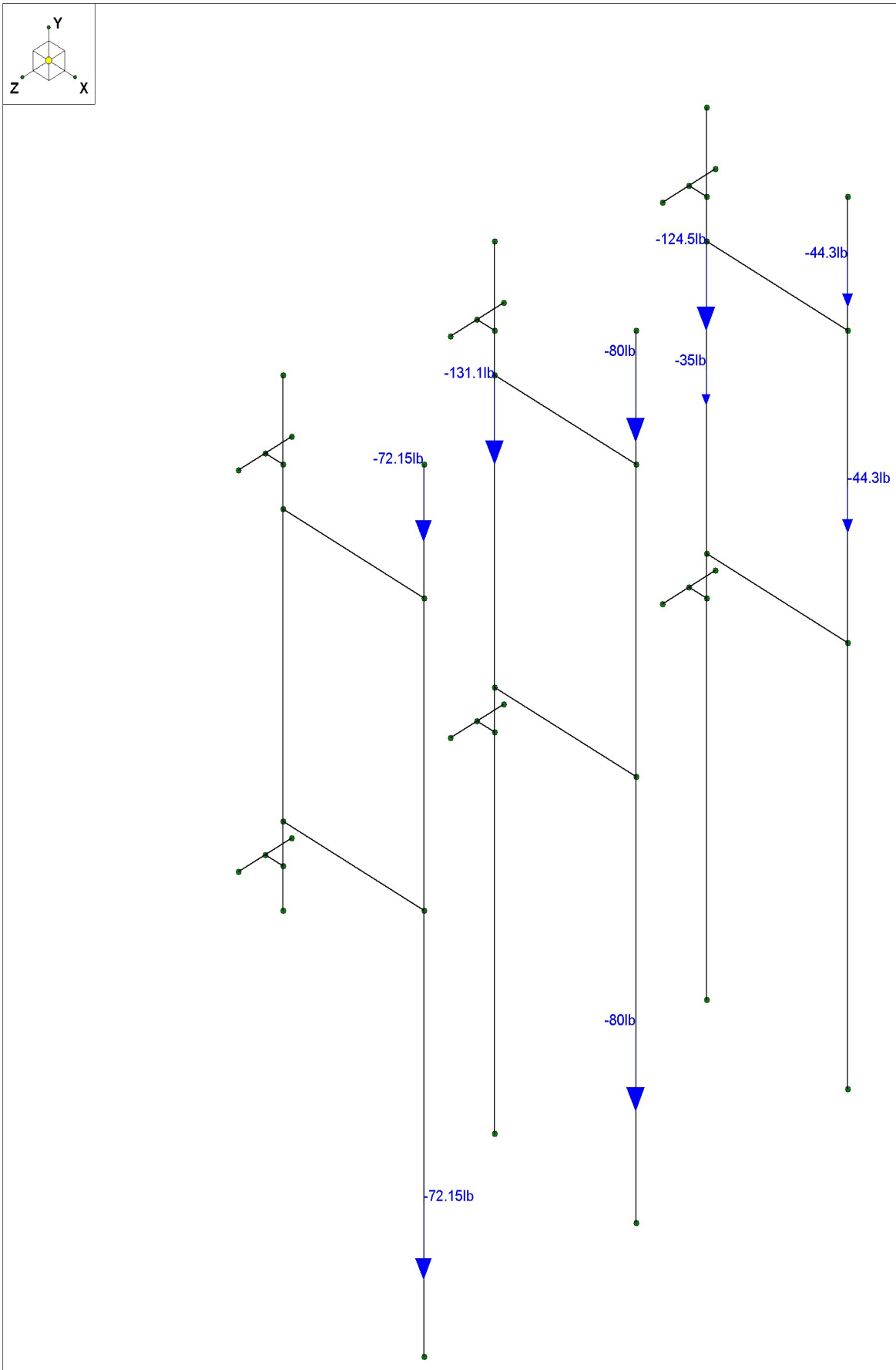
Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M1	PIPE_2.0	.113	48.75	12	.049	48.75		12	9836.597	32130	22.459	22.459	2....	H1-1b
2	M2	PIPE_2.0	.448	66.25	2	.068	48.75		12	9836.597	32130	22.459	22.459	2....	H1-1b
3	M3	PIPE_2.0	.430	48.75	2	.075	48.75		4	9836.597	32130	22.459	22.459	2....	H1-1b
4	M4	PIPE_2.0	.118	48.75	4	.028	11.25		13	9836.597	32130	22.459	22.459	2....	H1-1b
5	M13	L5x3x1/4	.019	0	10	.006	0	z	10	52561.313	62775	24.243	82.325	1....	H2-1
6	M14	L5x3x1/4	.071	0	10	.022	4.8	z	7	52561.313	62775	19.685	66.847	1....	H2-1
7	M15	L5x3x1/4	.019	4.8	10	.006	4.8	z	10	52561.313	62775	24.243	82.325	1....	H2-1
8	M16	L5x3x1/4	.071	4.8	10	.023	0	z	12	52561.313	62775	19.685	66.847	1....	H2-1
9	M17	L5x3x1/4	.110	0	2	.036	4.8	z	2	52561.313	62775	24.243	82.325	1....	H2-1
10	M18	L5x3x1/4	.223	0	9	.072	4.8	z	9	52561.313	62775	24.243	82.325	1....	H2-1
11	M19	L5x3x1/4	.110	4.8	2	.036	0	z	2	52561.313	62775	24.243	82.325	1....	H2-1
12	M20	L5x3x1/4	.223	4.8	11	.072	0	z	11	52561.313	62775	24.243	82.325	1....	H2-1
13	M21	L5x3x1/4	.069	0	3	.017	4.8	z	2	52561.313	62775	19.685	66.847	1....	H2-1
14	M22	L5x3x1/4	.220	0	9	.057	4.8	z	7	52561.313	62775	19.685	66.847	1....	H2-1
15	M23	L5x3x1/4	.069	4.8	17	.017	0	z	2	52561.313	62775	19.685	66.847	1....	H2-1
16	M24	L5x3x1/4	.233	4.8	12	.059	0	z	12	52561.313	62775	19.685	66.847	1....	H2-1
17	M25	L5x3x1/4	.035	0	4	.008	4.8	z	4	52561.313	62775	19.685	66.847	1....	H2-1
18	M26	L5x3x1/4	.064	0	9	.020	4.8	z	7	52561.313	62775	19.685	66.847	1....	H2-1
19	M27	L5x3x1/4	.032	4.8	15	.008	0	z	17	52561.313	62775	19.685	66.847	1....	H2-1
20	M28	L5x3x1/4	.076	4.8	12	.020	0	z	13	52561.313	62775	19.685	66.847	1....	H2-1
21	M31	PIPE_2.0	.074	78.75	4	.012	7.5		12	9836.597	32130	22.459	22.459	2....	H1-1b
22	M34	PIPE_2.0	.289	80	10	.029	7.5		12	9836.597	32130	22.459	22.459	2....	H1-1b
23	M35	PIPE_2.0	.051	12.5	32	.018	47.5		11	23808.54	32130	22.459	22.459	1....	H1-1b
24	M36	PIPE_2.0	.075	12	2	.041	12		15	31747.067	32130	22.459	22.459	1....	H1-1b
25	M37	PIPE_2.0	.115	12	10	.044	12		12	31747.067	32130	22.459	22.459	1....	H1-1b
26	M38	PIPE_2.0	.115	47.5	12	.026	47.5		12	23808.54	32130	22.459	22.459	1....	H1-1b
27	M39	PIPE_2.0	.434	12	2	.163	12		4	31747.067	32130	22.459	22.459	1....	H1-1b
28	M40	PIPE_2.0	.385	12	10	.105	12		11	31747.067	32130	22.459	22.459	1....	H1-1b



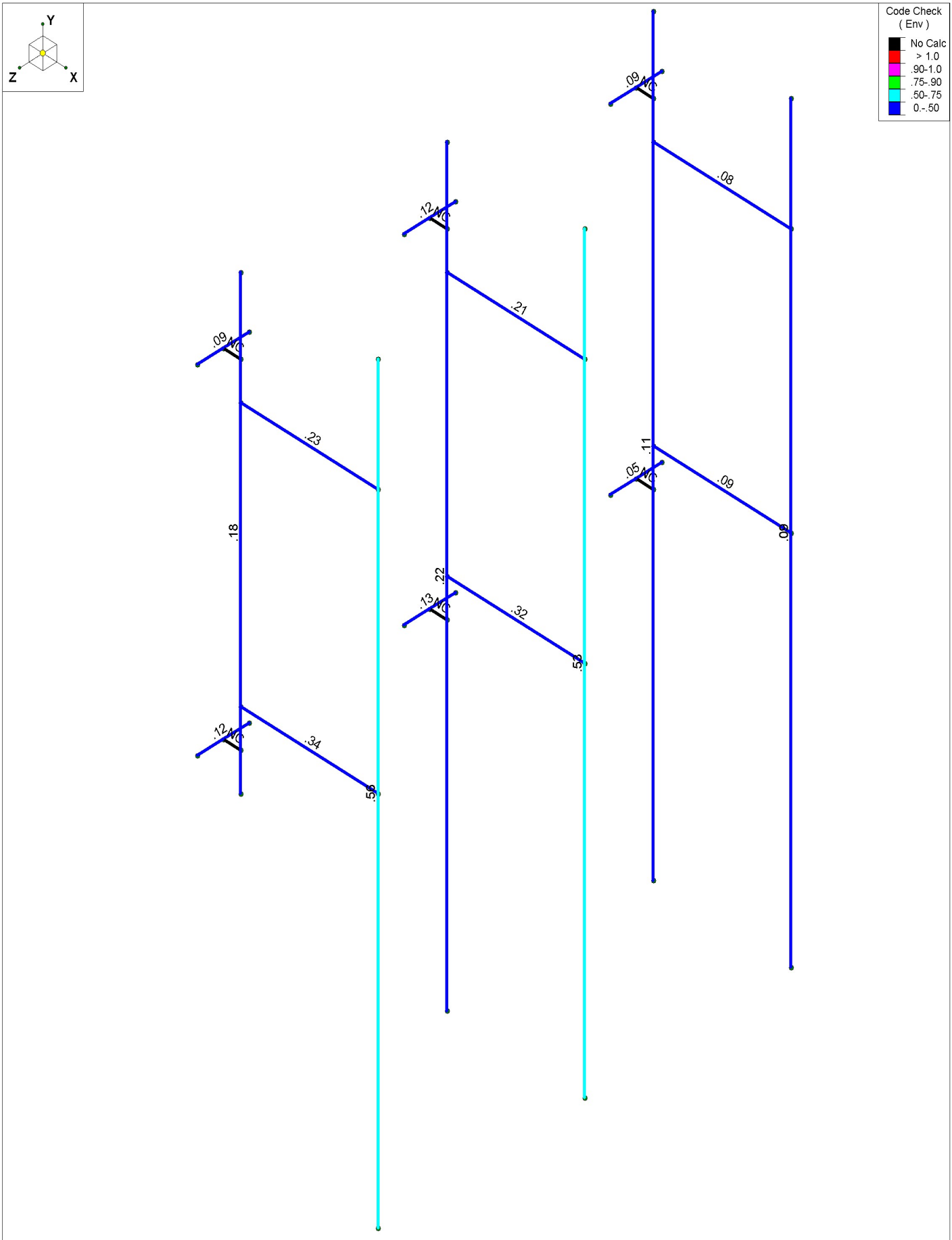


Core One Consultants	DOWNTOWN PUYALLUP	SK - 1
GV		May 28, 2024 at 10:36 AM
TA48		GAMMA-BETA.r3d



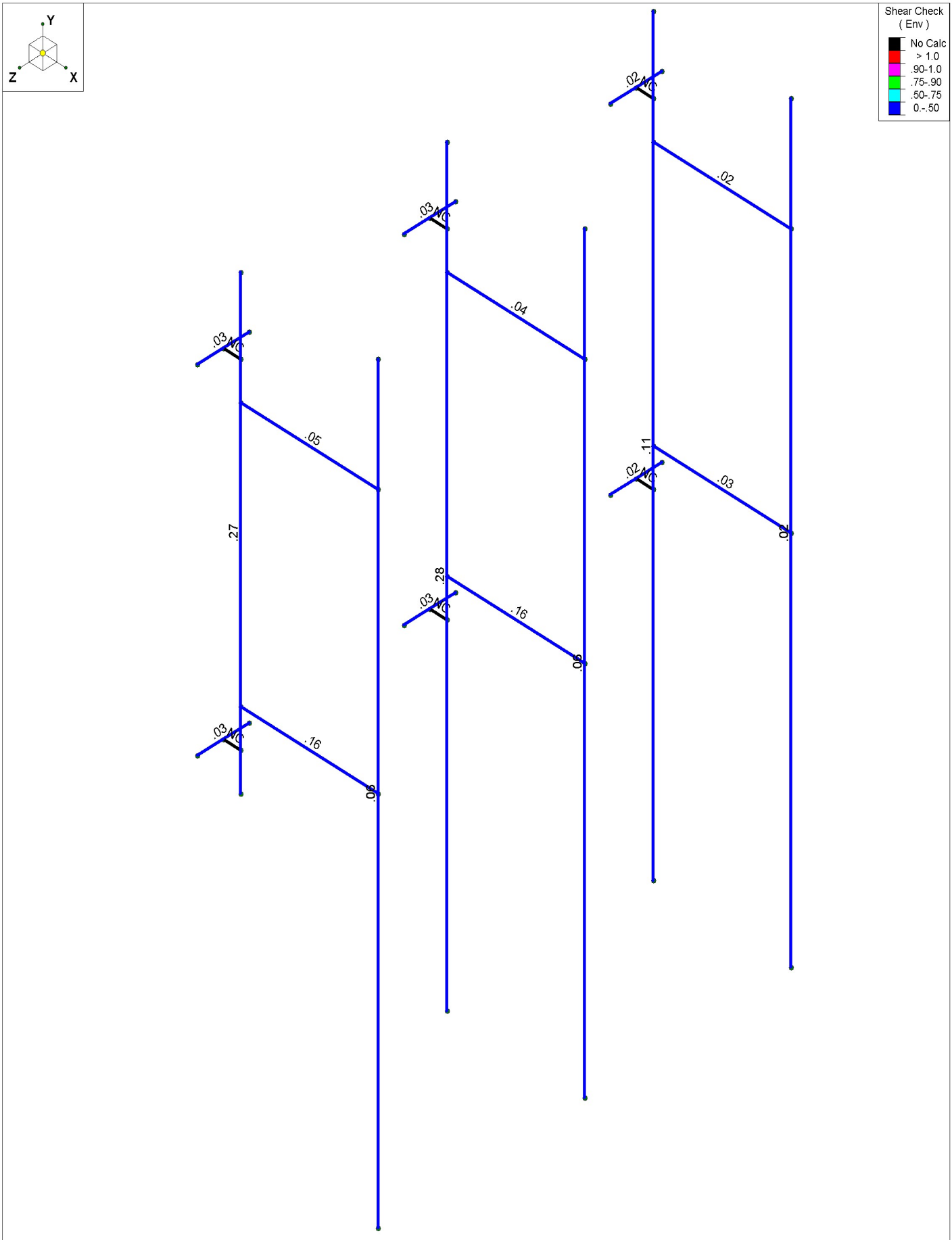
Loads: BLC 2, We

Core One Consultants	DOWNTOWN PUYALLUP	SK - 2
GV		May 28, 2024 at 10:36 AM
TA48		GAMMA-BETA.r3d



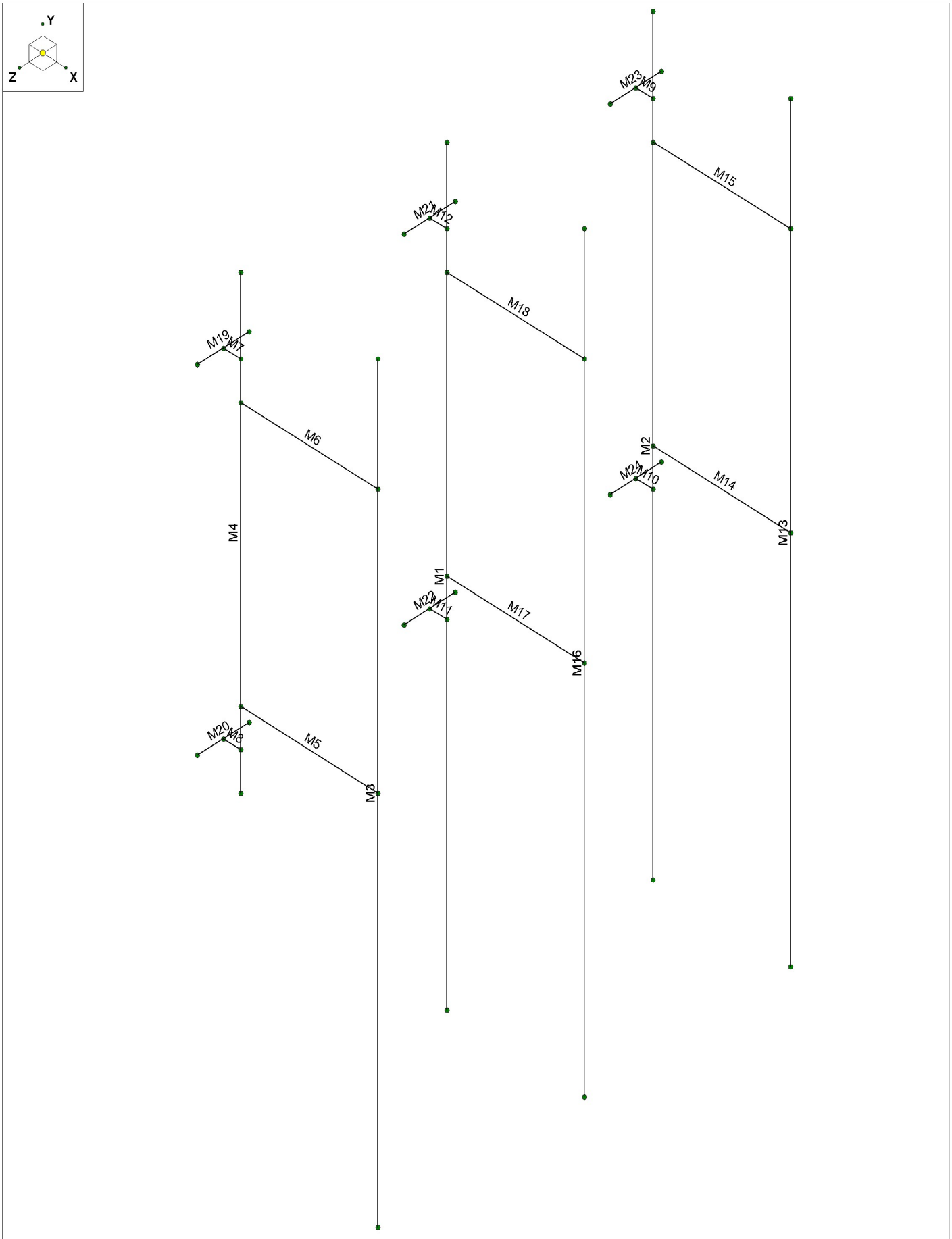
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Core One Consultants	DOWNTOWN PUYALLUP	SK - 3
GV		May 28, 2024 at 10:37 AM
TA48		GAMMA-BETA.r3d



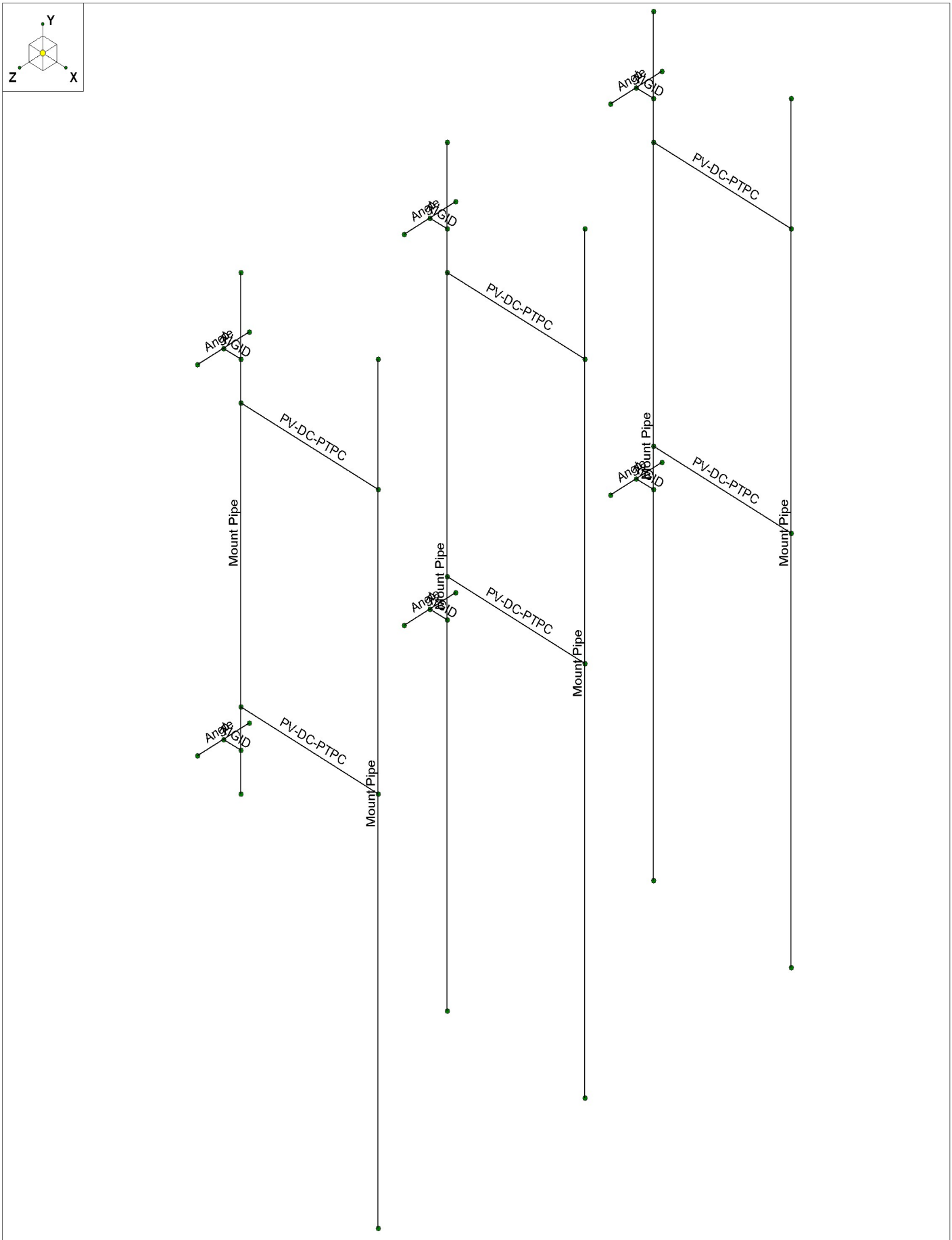
Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Core One Consultants	DOWNTOWN PUYALLUP	SK - 4
GV		May 28, 2024 at 10:37 AM
TA48		GAMMA-BETA.r3d



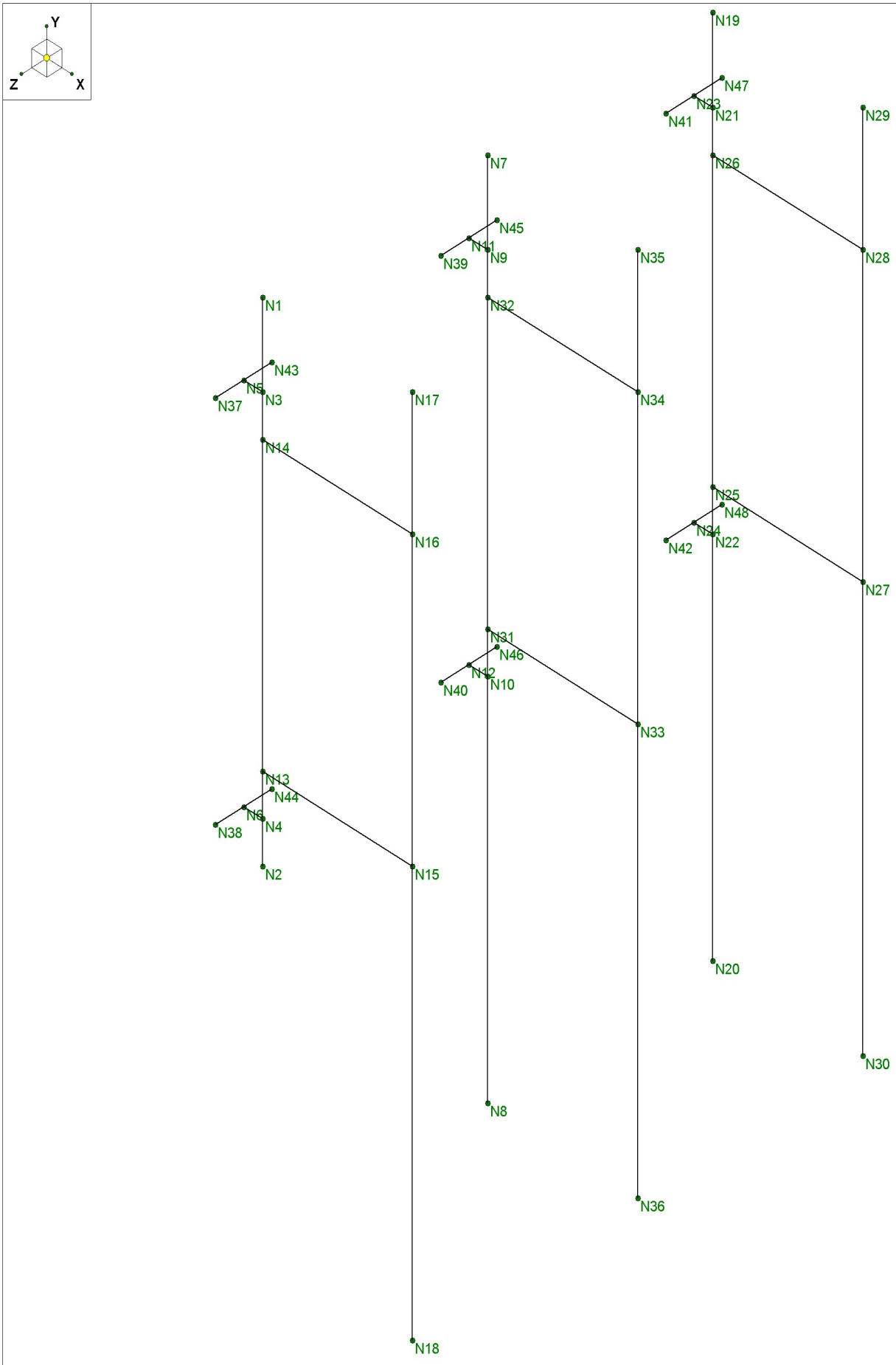
Envelope Only Solution

Core One Consultants	DOWNTOWN PUYALLUP	SK - 5
GV		May 28, 2024 at 10:37 AM
TA48		GAMMA-BETA.r3d



Envelope Only Solution

Core One Consultants	DOWNTOWN PUYALLUP	SK - 6
GV		May 28, 2024 at 10:37 AM
TA48		GAMMA-BETA.r3d



Envelope Only Solution

Core One Consultants	DOWNTOWN PUYALLUP	SK - 7
GV		May 28, 2024 at 10:38 AM
TA48		GAMMA-BETA.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	Yes
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E..	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B RECT	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A500 Gr.C RND	29000	11154	.3	.65	.527	46	1.4	62	1.3
7	A500 Gr.C RECT	29000	11154	.3	.65	.527	50	1.4	62	1.3
8	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
9	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3
10	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Angle	L5x3x1/4	None	None	A36 Gr.36	Typical	1.938	1.438	5.11	.039
3	PV-DC-PTPC	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	RRU pipe	PIPE_2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25

Material Takeoff

	Material	Size	Pieces	Length[in]	Weight[K]
1	General				
2	RIGID		6	18	0
3	Total General		6	18	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	L5x3x1/4	6	54	.03
7	A53 Gr.B	PIPE_2.0	12	816	.236
8	Total HR Steel		18	870	.266

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N37	Reaction	Reaction	Reaction			
2	N43	Reaction	Reaction	Reaction			
3	N44	Reaction	Reaction	Reaction			
4	N38	Reaction	Reaction	Reaction			
5	N45	Reaction	Reaction	Reaction			
6	N39	Reaction	Reaction	Reaction			
7	N46	Reaction	Reaction	Reaction			
8	N40	Reaction	Reaction	Reaction			
9	N47	Reaction	Reaction	Reaction			
10	N41	Reaction	Reaction	Reaction			
11	N48	Reaction	Reaction	Reaction			
12	N42	Reaction	Reaction	Reaction			

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N7	N8			Mount Pipe	None	None	A53 Gr.B	Typical
2	M2	N19	N20			Mount Pipe	None	None	A53 Gr.B	Typical
3	M3	N17	N18			Mount Pipe	None	None	A53 Gr.B	Typical
4	M4	N1	N2			Mount Pipe	None	None	A53 Gr.B	Typical
5	M5	N15	N13			PV-DC-PTPC	None	None	A53 Gr.B	Typical
6	M6	N16	N14			PV-DC-PTPC	None	None	A53 Gr.B	Typical
7	M7	N3	N5			RIGID	None	None	RIGID	Typical
8	M8	N4	N6			RIGID	None	None	RIGID	Typical
9	M9	N21	N23			RIGID	None	None	RIGID	Typical
10	M10	N22	N24			RIGID	None	None	RIGID	Typical
11	M11	N10	N12			RIGID	None	None	RIGID	Typical
12	M12	N9	N11			RIGID	None	None	RIGID	Typical
13	M13	N29	N30			Mount Pipe	None	None	A53 Gr.B	Typical
14	M14	N27	N25			PV-DC-PTPC	None	None	A53 Gr.B	Typical
15	M15	N28	N26			PV-DC-PTPC	None	None	A53 Gr.B	Typical
16	M16	N35	N36			Mount Pipe	None	None	A53 Gr.B	Typical
17	M17	N33	N31			PV-DC-PTPC	None	None	A53 Gr.B	Typical
18	M18	N34	N32			PV-DC-PTPC	None	None	A53 Gr.B	Typical
19	M19	N37	N43		270	Angle	None	None	A36 Gr.36	Typical
20	M20	N38	N44		270	Angle	None	None	A36 Gr.36	Typical
21	M21	N39	N45		270	Angle	None	None	A36 Gr.36	Typical
22	M22	N40	N46		270	Angle	None	None	A36 Gr.36	Typical
23	M23	N41	N47		270	Angle	None	None	A36 Gr.36	Typical
24	M24	N42	N48		270	Angle	None	None	A36 Gr.36	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
14	M14						Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Mount Pipe	120			Lbyy						Lateral
2	M2	Mount Pipe	120			Lbyy						Lateral
3	M3	Mount Pipe	120			Lbyy						Lateral
4	M4	Mount Pipe	72			Lbyy						Lateral
5	M5	PV-DC-PTPC	24			Lbyy						Lateral
6	M6	PV-DC-PTPC	24			Lbyy						Lateral
7	M13	Mount Pipe	120			Lbyy						Lateral
8	M14	PV-DC-PTPC	24			Lbyy						Lateral
9	M15	PV-DC-PTPC	24			Lbyy						Lateral
10	M16	Mount Pipe	120			Lbyy						Lateral
11	M17	PV-DC-PTPC	24			Lbyy						Lateral
12	M18	PV-DC-PTPC	24			Lbyy						Lateral
13	M19	Angle	9			Lbyy						Lateral
14	M20	Angle	9			Lbyy						Lateral
15	M21	Angle	9			Lbyy						Lateral
16	M22	Angle	9			Lbyy						Lateral
17	M23	Angle	9			Lbyy						Lateral
18	M24	Angle	9			Lbyy						Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self We	DL		-1.1						
2	We	DL					11			
3	Ice We	DL					11	12		
4	W0	WL					11	12		
5	W30	WL					22	24		
6	W45	WL					22	24		
7	W60	WL					22	24		
8	W90	WL					11	12		
9	W120	WL					22	24		
10	W135	WL					22	24		
11	W150	WL					22	24		
12	W0 + Ice	WL					11	12		
13	W30 + Ice	WL					22	24		
14	W45 + Ice	WL					22	24		
15	W60 + Ice	WL					22	24		
16	W90 + Ice	WL					11	12		
17	W120 + Ice	WL					22	24		
18	W135 + Ice	WL					22	24		
19	W150 + Ice	WL					22	24		
20	250lbs LM 1	LL								
21	250lbs LM 2	LL								

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
22	250lbs LM 3	LL								
23	250lbs LM 4	LL								
24	250lbs LV 5	LL								
25	250lbs LV 6	LL								
26	E0	EL	-.51			1	11			
27	E90	EL			.51	1	11			

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	Dead	Yes	Y		1	1.4	2	1.4	0		0													
2	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	1	0													
3	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	1	0													
4	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	1	0													
5	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	1	0													
6	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	1	0													
7	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	1	0													
8	Dead + Wi...	Yes	Y		1	1.2	2	1.2	10	1	0													
9	Dead + Wi...	Yes	Y		1	1.2	2	1.2	11	1	0													
10	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	-1	0													
11	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	-1	0													
12	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	-1	0													
13	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	-1	0													
14	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	-1	0													
15	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	-1	0													
16	Dead + Wi...	Yes	Y		1	1.2	2	1.2	10	-1	0													
17	Dead + Wi...	Yes	Y		1	1.2	2	1.2	11	-1	0													
18	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	1	3	1												
19	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	1	3	1												
20	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	1	3	1												
21	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	1	3	1												
22	Dead + Ic...	Yes	Y		1	1.2	2	1.2	16	1	3	1												
23	Dead + Ic...	Yes	Y		1	1.2	2	1.2	17	1	3	1												
24	Dead + Ic...	Yes	Y		1	1.2	2	1.2	18	1	3	1												
25	Dead + Ic...	Yes	Y		1	1.2	2	1.2	19	1	3	1												
26	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	-1	3	1												
27	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	-1	3	1												
28	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	-1	3	1												
29	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	-1	3	1												
30	Dead + Ic...	Yes	Y		1	1.2	2	1.2	16	-1	3	1												
31	Dead + Ic...	Yes	Y		1	1.2	2	1.2	17	-1	3	1												
32	Dead + Ic...	Yes	Y		1	1.2	2	1.2	18	-1	3	1												
33	Dead + Ic...	Yes	Y		1	1.2	2	1.2	19	-1	3	1												
34	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	4	.094												
35	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	5	.094												
36	Dead + L...	Yes	Y		1	1.2	2		20	1.5	6	.094												
37	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	7	.094												
38	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	8	.094												
39	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	9	.094												
40	Dead + L...	Yes	Y		1	1.2	2		20	1.5	10	.094												
41	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	11	.094												
42	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	4	-.094												
43	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	5	-.094												
44	Dead + L...	Yes	Y		1	1.2	2		20	1.5	6	-.094												
45	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	7	-.094												
46	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	8	-.094												
47	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	9	-.094												
48	Dead + L...	Yes	Y		1	1.2	2		20	1.5	10	-.094												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..
49	Dead + L...	Yes	Y		1	1.2	2	1.2	20	1.5	11	-.094												
50	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	4	.094												
51	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	5	.094												
52	Dead + L...	Yes	Y		1	1.2	2		21	1.5	6	.094												
53	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	7	.094												
54	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	8	.094												
55	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	9	.094												
56	Dead + L...	Yes	Y		1	1.2	2		21	1.5	10	.094												
57	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	11	.094												
58	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	4	-.094												
59	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	5	-.094												
60	Dead + L...	Yes	Y		1	1.2	2		21	1.5	6	-.094												
61	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	7	-.094												
62	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	8	-.094												
63	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	9	-.094												
64	Dead + L...	Yes	Y		1	1.2	2		21	1.5	10	-.094												
65	Dead + L...	Yes	Y		1	1.2	2	1.2	21	1.5	11	-.094												
66	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	4	.094												
67	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	5	.094												
68	Dead + L...	Yes	Y		1	1.2	2		22	1.5	6	.094												
69	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	7	.094												
70	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	8	.094												
71	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	9	.094												
72	Dead + L...	Yes	Y		1	1.2	2		22	1.5	10	.094												
73	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	11	.094												
74	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	4	-.094												
75	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	5	-.094												
76	Dead + L...	Yes	Y		1	1.2	2		22	1.5	6	-.094												
77	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	7	-.094												
78	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	8	-.094												
79	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	9	-.094												
80	Dead + L...	Yes	Y		1	1.2	2		22	1.5	10	-.094												
81	Dead + L...	Yes	Y		1	1.2	2	1.2	22	1.5	11	-.094												
82	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	4	.094												
83	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	5	.094												
84	Dead + L...	Yes	Y		1	1.2	2		23	1.5	6	.094												
85	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	7	.094												
86	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	8	.094												
87	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	9	.094												
88	Dead + L...	Yes	Y		1	1.2	2		23	1.5	10	.094												
89	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	11	.094												
90	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	4	-.094												
91	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	5	-.094												
92	Dead + L...	Yes	Y		1	1.2	2		23	1.5	6	-.094												
93	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	7	-.094												
94	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	8	-.094												
95	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	9	-.094												
96	Dead + L...	Yes	Y		1	1.2	2		23	1.5	10	-.094												
97	Dead + L...	Yes	Y		1	1.2	2	1.2	23	1.5	11	-.094												
98	Dead + LV...	Yes	Y		1	1.2	2	1.2	24	1.5	0													
99	Dead + LV...	Yes	Y		1	1.2	2	1.2	25	1.5	0													
100	Service 60...	Yes	Y		1	1	2	1	4	.375	0													
101	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	1	23													
102	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.866	23	.5												
103	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.707	23	.707												
104	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.5	23	.866												
105	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22		23	1												
106	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.5	23	.866												
107	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.707	23	.707												

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
108	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.866	23	.5												
109	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-1	23													
110	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.866	23	-.5												
111	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.707	23	-.707												
112	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	-.5	23	-.866												
113	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22		23	-1												
114	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.5	23	-.866												
115	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.707	23	-.707												
116	(1.2 + 0.2...	Yes	Y		1	1.403	2	1.403	22	.866	23	-.5												

Member Point Loads (BLC 2 : We)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	Y	-44.3	14.85
2	M16	Y	-80	15
3	M3	Y	-72.15	10.4
4	M13	Y	-44.3	45.15
5	M16	Y	-80	105
6	M3	Y	-72.15	109.6
7	M1	Y	-66.1	30
8	M1	Y	-65	30
9	M2	Y	-67.2	30
10	M2	Y	-57.3	30
11	M2	Y	-35	40

Member Point Loads (BLC 3 : Ice We)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	Y	-39.161	14.85
2	M16	Y	-138.434	15
3	M3	Y	-127.59	10.4
4	M13	Y	-39.161	45.15
5	M16	Y	-138.434	105
6	M3	Y	-127.59	109.6
7	M1	Y	-27.868	30
8	M1	Y	-42.518	30
9	M2	Y	-42.731	30
10	M2	Y	-34.44	30
11	M2	Y	-36.761	40

Member Point Loads (BLC 4 : W0)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	-57.01	14.85
2	M16	X	-241.742	15
3	M3	X	-230.518	10.4
4	M13	X	-57.01	45.15
5	M16	X	-241.742	105
6	M3	X	-230.518	109.6
7	M1	X	-39.922	30
8	M1	X	-63.887	30
9	M2	X	-64.296	30
10	M2	X	-52.533	30
11	M2	X	-53.826	40

Member Point Loads (BLC 5 : W30)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	-44.672	14.85
2	M16	X	-178.795	15

Member Point Loads (BLC 5 : W30) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
3	M3	X	-171.529	10.4
4	M13	X	-44.672	45.15
5	M16	X	-178.795	105
6	M3	X	-171.529	109.6
7	M1	X	-30.249	30
8	M1	X	-47.804	30
9	M2	X	-48.07	30
10	M2	X	-38.437	30
11	M2	X	-40.721	40
12	M13	Z	25.791	14.85
13	M16	Z	103.228	15
14	M3	Z	99.032	10.4
15	M13	Z	25.791	45.15
16	M16	Z	103.228	105
17	M3	Z	99.032	109.6
18	M1	Z	17.464	30
19	M1	Z	27.6	30
20	M2	Z	27.753	30
21	M2	Z	22.192	30
22	M2	Z	23.51	40

Member Point Loads (BLC 6 : W45)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	-32.637	14.85
2	M16	X	-121.034	15
3	M3	X	-117.105	10.4
4	M13	X	-32.637	45.15
5	M16	X	-121.034	105
6	M3	X	-117.105	109.6
7	M1	X	-21.167	30
8	M1	X	-32.889	30
9	M2	X	-33.034	30
10	M2	X	-25.621	30
11	M2	X	-28.437	40
12	M13	Z	32.637	14.85
13	M16	Z	121.034	15
14	M3	Z	117.105	10.4
15	M13	Z	32.637	45.15
16	M16	Z	121.034	105
17	M3	Z	117.105	109.6
18	M1	Z	21.167	30
19	M1	Z	32.889	30
20	M2	Z	33.034	30
21	M2	Z	25.621	30
22	M2	Z	28.437	40

Member Point Loads (BLC 7 : W60)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	-20.364	14.85
2	M16	X	-67.94	15
3	M3	X	-66.58	10.4
4	M13	X	-20.364	45.15
5	M16	X	-67.94	105
6	M3	X	-66.58	109.6
7	M1	X	-12.471	30
8	M1	X	-18.912	30
9	M2	X	-18.964	30
10	M2	X	-14.042	30

Member Point Loads (BLC 7 : W60) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
11	M2	X	-16.705	40
12	M13	Z	35.272	14.85
13	M16	Z	117.676	15
14	M3	Z	115.319	10.4
15	M13	Z	35.272	45.15
16	M16	Z	117.676	105
17	M3	Z	115.319	109.6
18	M1	Z	21.6	30
19	M1	Z	32.757	30
20	M2	Z	32.846	30
21	M2	Z	24.321	30
22	M2	Z	28.934	40

Member Point Loads (BLC 8 : W90)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	Z	35.301	14.85
2	M16	Z	100.593	15
3	M3	Z	100.706	10.4
4	M13	Z	35.301	45.15
5	M16	Z	100.593	105
6	M3	Z	100.706	109.6
7	M1	Z	19.948	30
8	M1	Z	29.137	30
9	M2	Z	29.137	30
10	M2	Z	19.934	30
11	M2	Z	26.605	40

Member Point Loads (BLC 9 : W120)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	20.364	14.85
2	M16	X	67.94	15
3	M3	X	66.58	10.4
4	M13	X	20.364	45.15
5	M16	X	67.94	105
6	M3	X	66.58	109.6
7	M1	X	12.471	30
8	M1	X	18.912	30
9	M2	X	18.964	30
10	M2	X	14.042	30
11	M2	X	16.705	40
12	M13	Z	35.272	14.85
13	M16	Z	117.676	15
14	M3	Z	115.319	10.4
15	M13	Z	35.272	45.15
16	M16	Z	117.676	105
17	M3	Z	115.319	109.6
18	M1	Z	21.6	30
19	M1	Z	32.757	30
20	M2	Z	32.846	30
21	M2	Z	24.321	30
22	M2	Z	28.934	40

Member Point Loads (BLC 10 : W135)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	32.637	14.85
2	M16	X	121.034	15
3	M3	X	117.105	10.4

Member Point Loads (BLC 10 : W135) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
4	M13	X	32.637	45.15
5	M16	X	121.034	105
6	M3	X	117.105	109.6
7	M1	X	21.167	30
8	M1	X	32.889	30
9	M2	X	33.034	30
10	M2	X	25.621	30
11	M2	X	28.437	40
12	M13	Z	32.637	14.85
13	M16	Z	121.034	15
14	M3	Z	117.105	10.4
15	M13	Z	32.637	45.15
16	M16	Z	121.034	105
17	M3	Z	117.105	109.6
18	M1	Z	21.167	30
19	M1	Z	32.889	30
20	M2	Z	33.034	30
21	M2	Z	25.621	30
22	M2	Z	28.437	40

Member Point Loads (BLC 11 : W150)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	44.672	14.85
2	M16	X	178.795	15
3	M3	X	171.529	10.4
4	M13	X	44.672	45.15
5	M16	X	178.795	105
6	M3	X	171.529	109.6
7	M1	X	30.249	30
8	M1	X	47.804	30
9	M2	X	48.07	30
10	M2	X	38.437	30
11	M2	X	40.721	40
12	M13	Z	25.791	14.85
13	M16	Z	103.228	15
14	M3	Z	99.032	10.4
15	M13	Z	25.791	45.15
16	M16	Z	103.228	105
17	M3	Z	99.032	109.6
18	M1	Z	17.464	30
19	M1	Z	27.6	30
20	M2	Z	27.753	30
21	M2	Z	22.192	30
22	M2	Z	23.51	40

Member Point Loads (BLC 12 : W0 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	-6.415	14.85
2	M16	X	-24.988	15
3	M3	X	-24.043	10.4
4	M13	X	-6.415	45.15
5	M16	X	-24.988	105
6	M3	X	-24.043	109.6
7	M1	X	-4.952	30
8	M1	X	-7.503	30
9	M2	X	-7.545	30
10	M2	X	-6.296	30
11	M2	X	-6.43	40

Member Point Loads (BLC 13 : W30 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	-5.08	14.85
2	M16	X	-18.736	15
3	M3	X	-18.16	10.4
4	M13	X	-5.08	45.15
5	M16	X	-18.736	105
6	M3	X	-18.16	109.6
7	M1	X	-3.816	30
8	M1	X	-5.709	30
9	M2	X	-5.737	30
10	M2	X	-4.702	30
11	M2	X	-4.944	40
12	M13	Z	2.933	14.85
13	M16	Z	10.817	15
14	M3	Z	10.485	10.4
15	M13	Z	2.933	45.15
16	M16	Z	10.817	105
17	M3	Z	10.485	109.6
18	M1	Z	2.203	30
19	M1	Z	3.296	30
20	M2	Z	3.312	30
21	M2	Z	2.715	30
22	M2	Z	2.855	40

Member Point Loads (BLC 14 : W45 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	-3.76	14.85
2	M16	X	-12.927	15
3	M3	X	-12.655	10.4
4	M13	X	-3.76	45.15
5	M16	X	-12.927	105
6	M3	X	-12.655	109.6
7	M1	X	-2.73	30
8	M1	X	-4.018	30
9	M2	X	-4.033	30
10	M2	X	-3.226	30
11	M2	X	-3.527	40
12	M13	Z	3.76	14.85
13	M16	Z	12.927	15
14	M3	Z	12.655	10.4
15	M13	Z	3.76	45.15
16	M16	Z	12.927	105
17	M3	Z	12.655	109.6
18	M1	Z	2.73	30
19	M1	Z	4.018	30
20	M2	Z	4.033	30
21	M2	Z	3.226	30
22	M2	Z	3.527	40

Member Point Loads (BLC 15 : W60 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	-2.384	14.85
2	M16	X	-7.464	15
3	M3	X	-7.412	10.4
4	M13	X	-2.384	45.15
5	M16	X	-7.464	105
6	M3	X	-7.412	109.6
7	M1	X	-1.657	30
8	M1	X	-2.386	30

Member Point Loads (BLC 15 : W60 + Ice) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
9	M2	X	-2.391	30
10	M2	X	-1.847	30
11	M2	X	-2.134	40
12	M13	Z	4.129	14.85
13	M16	Z	12.929	15
14	M3	Z	12.837	10.4
15	M13	Z	4.129	45.15
16	M16	Z	12.929	105
17	M3	Z	12.837	109.6
18	M1	Z	2.871	30
19	M1	Z	4.133	30
20	M2	Z	4.142	30
21	M2	Z	3.2	30
22	M2	Z	3.696	40

Member Point Loads (BLC 16 : W90 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	Z	4.219	14.85
2	M16	Z	11.576	15
3	M3	Z	11.75	10.4
4	M13	Z	4.219	45.15
5	M16	Z	11.576	105
6	M3	Z	11.75	109.6
7	M1	Z	2.769	30
8	M1	Z	3.862	30
9	M2	Z	3.862	30
10	M2	Z	2.828	30
11	M2	Z	3.547	40

Member Point Loads (BLC 17 : W120 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	2.384	14.85
2	M16	X	7.464	15
3	M3	X	7.412	10.4
4	M13	X	2.384	45.15
5	M16	X	7.464	105
6	M3	X	7.412	109.6
7	M1	X	1.657	30
8	M1	X	2.386	30
9	M2	X	2.391	30
10	M2	X	1.847	30
11	M2	X	2.134	40
12	M13	Z	4.129	14.85
13	M16	Z	12.929	15
14	M3	Z	12.837	10.4
15	M13	Z	4.129	45.15
16	M16	Z	12.929	105
17	M3	Z	12.837	109.6
18	M1	Z	2.871	30
19	M1	Z	4.133	30
20	M2	Z	4.142	30
21	M2	Z	3.2	30
22	M2	Z	3.696	40

Member Point Loads (BLC 18 : W135 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	3.76	14.85

Member Point Loads (BLC 18 : W135 + Ice) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
2	M16	X	12.927	15
3	M3	X	12.655	10.4
4	M13	X	3.76	45.15
5	M16	X	12.927	105
6	M3	X	12.655	109.6
7	M1	X	2.73	30
8	M1	X	4.018	30
9	M2	X	4.033	30
10	M2	X	3.226	30
11	M2	X	3.527	40
12	M13	Z	3.76	14.85
13	M16	Z	12.927	15
14	M3	Z	12.655	10.4
15	M13	Z	3.76	45.15
16	M16	Z	12.927	105
17	M3	Z	12.655	109.6
18	M1	Z	2.73	30
19	M1	Z	4.018	30
20	M2	Z	4.033	30
21	M2	Z	3.226	30
22	M2	Z	3.527	40

Member Point Loads (BLC 19 : W150 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	5.08	14.85
2	M16	X	18.736	15
3	M3	X	18.16	10.4
4	M13	X	5.08	45.15
5	M16	X	18.736	105
6	M3	X	18.16	109.6
7	M1	X	3.816	30
8	M1	X	5.709	30
9	M2	X	5.737	30
10	M2	X	4.702	30
11	M2	X	4.944	40
12	M13	Z	2.933	14.85
13	M16	Z	10.817	15
14	M3	Z	10.485	10.4
15	M13	Z	2.933	45.15
16	M16	Z	10.817	105
17	M3	Z	10.485	109.6
18	M1	Z	2.203	30
19	M1	Z	3.296	30
20	M2	Z	3.312	30
21	M2	Z	2.715	30
22	M2	Z	2.855	40

Member Point Loads (BLC 26 : E0)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	X	-22.522	14.85
2	M16	X	-40.672	15
3	M3	X	-36.681	10.4
4	M13	X	-22.522	45.15
5	M16	X	-40.672	105
6	M3	X	-36.681	109.6
7	M1	X	-33.605	30
8	M1	X	-33.046	30
9	M2	X	-34.164	30

Member Point Loads (BLC 26 : E0) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
10	M2	X	-29.131	30
11	M2	X	-17.794	40

Member Point Loads (BLC 27 : E90)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M13	Z	22.522	14.85
2	M16	Z	40.672	15
3	M3	Z	36.681	10.4
4	M13	Z	22.522	45.15
5	M16	Z	40.672	105
6	M3	Z	36.681	109.6
7	M1	Z	33.605	30
8	M1	Z	33.046	30
9	M2	Z	34.164	30
10	M2	Z	29.131	30
11	M2	Z	17.794	40

Joint Loads and Enforced Displacements (BLC 26 : E0)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1				0

Joint Loads and Enforced Displacements (BLC 27 : E90)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1				0

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[psf]
No Data to Print ...						

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N37	max	249.281	4	374.116	10	34.236	14	0	116	0	116	0	116
2		min	-362.877	12	-238.629	2	-34.236	6	0	1	0	1	0	1
3	N43	max	243.455	15	374.116	10	34.236	14	0	116	0	116	0	116
4		min	-358.095	7	-238.629	2	-34.236	6	0	1	0	1	0	1
5	N44	max	730.019	15	377.551	2	137.677	13	0	116	0	116	0	116
6		min	-611.614	7	-235.194	10	-137.677	7	0	1	0	1	0	1
7	N38	max	778.094	4	377.551	2	137.677	13	0	116	0	116	0	116
8		min	-657.913	12	-235.194	10	-137.677	7	0	1	0	1	0	1
9	N45	max	250.893	15	422.542	10	46.462	15	0	116	0	116	0	116
10		min	-384.701	7	-187.977	2	-46.462	5	0	1	0	1	0	1
11	N39	max	261.865	4	422.542	10	46.462	15	0	116	0	116	0	116
12		min	-394.58	12	-187.977	2	-46.462	5	0	1	0	1	0	1
13	N46	max	781.61	17	424.142	2	152.878	13	0	116	0	116	0	116
14		min	-641.315	9	-186.377	10	-152.878	7	0	1	0	1	0	1
15	N40	max	838.33	4	424.142	2	152.878	13	0	116	0	116	0	116
16		min	-698.597	12	-186.377	10	-152.878	7	0	1	0	1	0	1
17	N47	max	187.412	15	266.584	9	63.776	15	0	116	0	116	0	116
18		min	-281.47	7	-56.693	17	-63.776	5	0	1	0	1	0	1
19	N41	max	187.92	4	266.584	11	63.776	15	0	116	0	116	0	116
20		min	-281.855	12	-56.693	3	-63.776	5	0	1	0	1	0	1
21	N48	max	318.805	15	283.042	16	77.66	14	0	116	0	116	0	116
22		min	-224.139	7	-72.25	8	-77.66	6	0	1	0	1	0	1

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
23	N42	max	322.592	4	220.723	2	77.66	14	0	116	0	116	0	116
24		min	-227.743	12	-9.865	10	-77.66	6	0	1	0	1	0	1
25	Totals:	max	1672.955	2	2268.685	24	1007.269	15						
26		min	-1672.955	10	350.704	48	-1007.269	5						

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

	Member	Shape	Code C...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M1	PIPE_2.0	.224	60	4	.282	65		4	9836.597	32130	22.459	22.459	1....	H3-6
2	M2	PIPE_2.0	.106	60	2	.106	65		14	9836.597	32130	22.459	22.459	1....	H1-1b
3	M3	PIPE_2.0	.556	60	10	.055	60		4	9836.597	32130	22.459	22.459	1....	H1-1b
4	M4	PIPE_2.0	.182	60	4	.270	66		4	20866.733	32130	22.459	22.459	1....	H3-6
5	M5	PIPE_2.0	.344	0	10	.164	24		12	30625.434	32130	22.459	22.459	1....	H1-1b
6	M6	PIPE_2.0	.232	0	2	.052	24		17	30625.434	32130	22.459	22.459	2....	H1-1b
7	M13	PIPE_2.0	.088	60	18	.018	45		8	9836.597	32130	22.459	22.459	1....	H1-1b
8	M14	PIPE_2.0	.093	24	14	.029	24		16	30625.434	32130	22.459	22.459	2....	H1-1b
9	M15	PIPE_2.0	.084	24	26	.019	24		8	30625.434	32130	22.459	22.459	2....	H1-1b
10	M16	PIPE_2.0	.530	60	10	.058	60		4	9836.597	32130	22.459	22.459	1....	H1-1b
11	M17	PIPE_2.0	.321	0	10	.157	24		12	30625.434	32130	22.459	22.459	1....	H1-1b
12	M18	PIPE_2.0	.213	0	2	.042	24		17	30625.434	32130	22.459	22.459	2....	H1-1b
13	M19	L5x3x1/4	.094	4.406	11	.026	0	z	10	52274.638	62775	19.685	66.847	1....	H2-1
14	M20	L5x3x1/4	.120	4.5	4	.032	0	y	4	52274.638	62775	24.243	82.325	1....	H2-1
15	M21	L5x3x1/4	.117	4.406	11	.029	0	z	10	52274.638	62775	19.685	66.847	1....	H2-1
16	M22	L5x3x1/4	.129	4.5	4	.034	0	y	4	52274.638	62775	24.243	82.325	1....	H2-1
17	M23	L5x3x1/4	.090	4.5	12	.018	0	z	11	52274.638	62775	19.685	66.847	1....	H2-1
18	M24	L5x3x1/4	.054	4.5	16	.019	9	z	16	52274.638	62775	24.243	82.325	1....	H2-1

SITE DETAILS

Site Name/Code	DOWNTOTOWN PUYALLUP-Alpha Connection
Date	05/28/2024
Engineer	GV

CONNECTION PARAMETERS

Loadcase #		**11**	
Number of bolts		**1**	
Bolt Diameter	d	**1/2**	*in*
Tensile Area	A_b	0.20	in^2
Tensile Area	A_n	0.14	in^2
Grade		A325	
Bolt Ultimate Strength	F_{ub}	120	*ksi*
Connection length reduction factor	R_b	1	

SOFTWARE REACTIONS TABLE

L...	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-in]	MY [k-in]	MZ [k-in]
3	N36	464.043	-602.699	**-102.994**	0	0	0
3	N30	287.087	312.826	-106.168	0	0	0
3	N32	268.326	-708.73	-106.168	0	0	0
3	N34	206.96	505.76	-102.994	0	0	0

L...	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-in]	MY [k-in]	MZ [k-in]
11	N32	-294.009	1055.97	105.752	0	0	**0**
11	N36	-406.726	771.617	104.734	0	0	0
11	N28	-91.388	304.126	51.979	0	0	0
11	N40	-105.318	234.901	32.734	0	0	0

BOLT CHECK

Bolt Tension Capacity

$\phi R_{nt} = 0.75 * F_{ub} * A_n$

ϕR_{nt}= **12.8** *kips*

Bolt Shear Capacity

$\phi R_{nv} = 0.75 * 0.45 * Fub * Ab * Rb$

ϕR_{nv}= **8.8** *kips*

Maximum Bolt Tension

$T_{ub} = F_{Mxx} + F_{Mzz} + T_y/4$

T_{ub}= **1.06** *kips*

Maximum Bolt Shear

$V_{ub} = \text{sqrt}((V_x/4)^2 + (V_y/4)^2) + F_{Myy}$

V_{ub}= **0.11** *kips*

Tension Ratio: **8.3 %** PASS

Shear Ratio: **1.2 %** PASS

$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$ **OK** Ratio **0.7%** PASS

SITE DETAILS

Site Name/Code	DOWNTOTOWN PUYALLUP - Gamma & Beta Connection
Date	05/28/2024
Engineer	GV

CONNECTION PARAMETERS

Loadcase #		**2**	
Number of bolts		**1**	
Bolt Diameter	d	**1/2**	*in*
Tensile Area	A_b	0.20	in^2
Tensile Area	A_n	0.14	in^2
Grade		A325	
Bolt Ultimate Strength	F_{ub}	120	*ksi*
Connection length reduction factor	R_b	1	

SOFTWARE REACTIONS TABLE

L...	Joint Label	X [lb]	Y [lb]	Z [lb]	MX [k-in]	MY [k-in]	MZ [k-in]
4	N40	838.33	218.492	**-147.301**	0	0	0
4	N38	778.094	212.033	-131.793	0	0	0
4	N42	322.592	193.371	-60.848	0	0	0
4	N39	261.865	-53.293	-43.726	0	0	0

BOLT CHECK

Bolt Tension Capacity

$\phi R_{nt} = 0.75 * F_{ub} * A_n$

ϕR_{nt}= **12.8** *kips*

Bolt Shear Capacity

$\phi R_{nv} = 0.75 * 0.45 * Fub * Ab * Rb$

ϕR_{nv}= **8.8** *kips*

Maximum Bolt Tension

$T_{ub} = F_{Mxx} + F_{Mzz} + T_y/4$

T_{ub}= **0.42** *kips*

Maximum Bolt Shear

$V_{ub} = \text{sqrt}((V_x/4)^2 + (V_y/4)^2) + F_{Myy}$

V_{ub}= **0.87** *kips*

Tension Ratio: **3.3 %** PASS

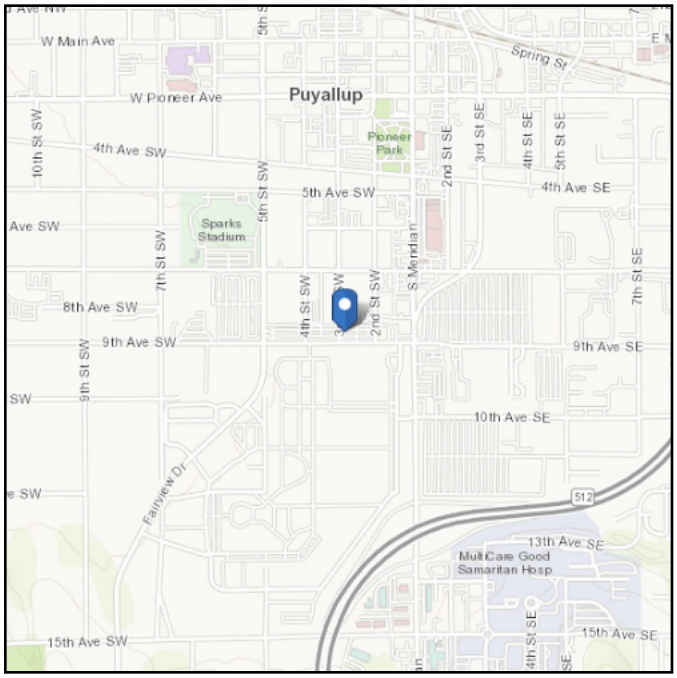
Shear Ratio: **9.8 %** PASS

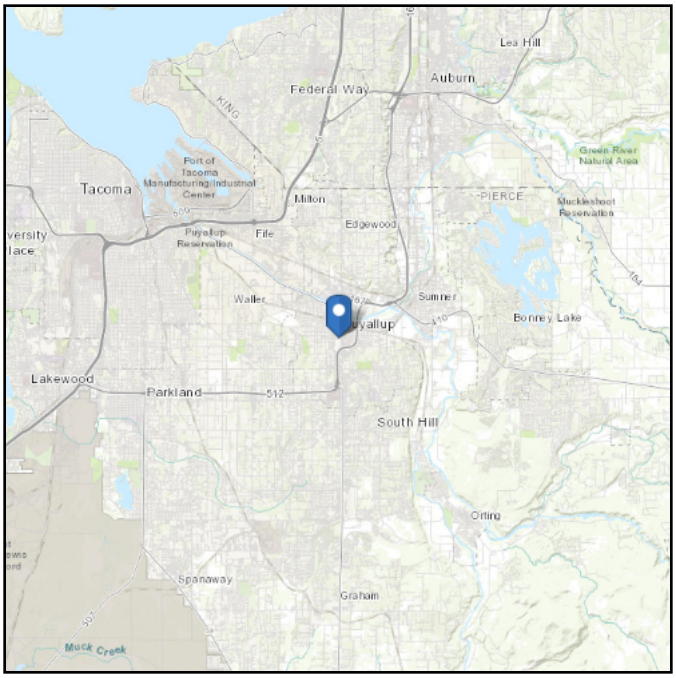
$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$ **OK** Ratio **1.1%** PASS

ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	47.18472
Risk Category:	II	**Longitude:**	-122.29611
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	41.66737136616424 ft (NAVD 88)





Wind

Results:

Wind Speed	98 Vmph
10-year MRI	67 Vmph
25-year MRI	73 Vmph
50-year MRI	78 Vmph
100-year MRI	83 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Mon May 27 2024

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Seismic

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_S :	1.271	S_{D1} :	N/A
S_1 :	0.438	T_L :	6
F_a :	1.2	PGA :	0.5
F_v :	N/A	PGA_M :	0.6
S_{MS} :	1.525	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1
S_{DS} :	1.017	C_v :	1.354

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Mon May 27 2024

Date Source: USGS Seismic Design Maps

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	25 F
Gust Speed	30 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Mon May 27 2024

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.