

SCAFFOLDING CALCULATION SHEET

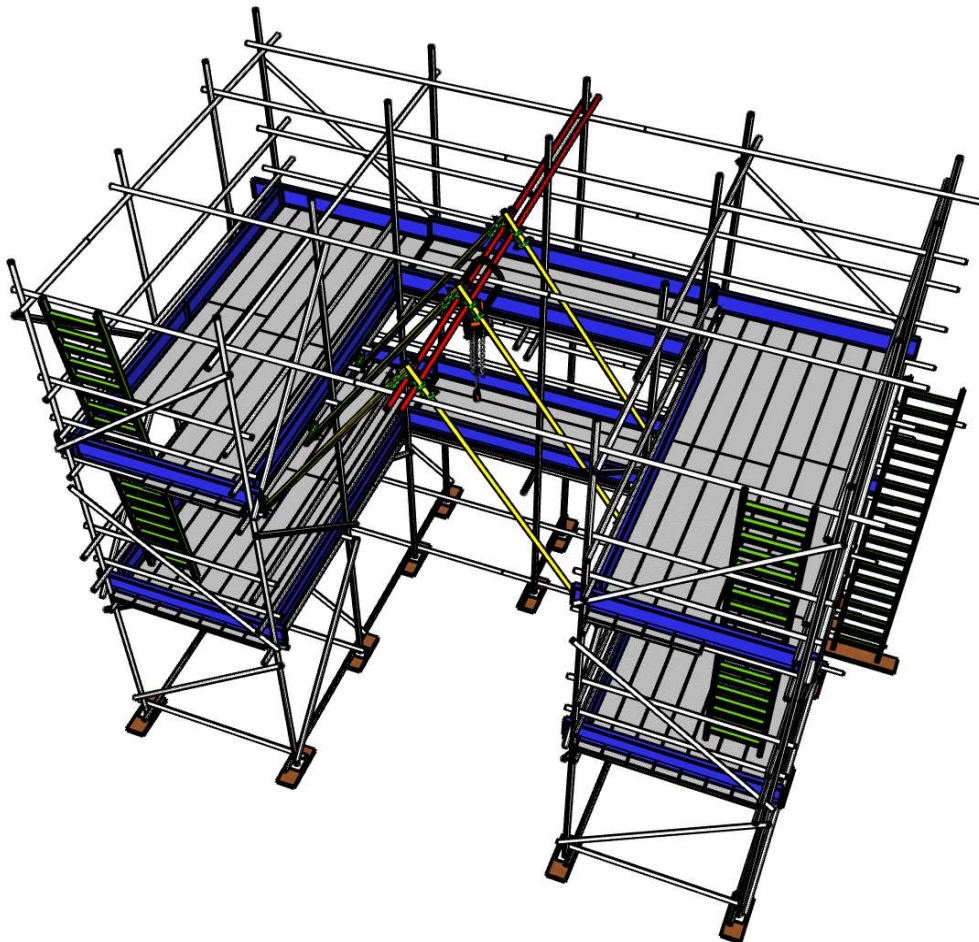
Design Report detail

Object : Bs Standard Scaffolding Standing type

Purpose of Use : Scaffolding for work at high

Project Conclusions ,Condition And Limited Of Use

- Scaffolding for lifting -> limit load 500 kg
- Client/End user must be make sure the load is not over limit of designed scaffold.
- Period of use this scaffold design between 24-Jul-2026 to 22-Sep-2026



REV.01	ISSUED FOR INSTALL SCAFFOLDING				
REV.00	ISSUED FOR INSTALL SCAFFOLDING	24-07-26			
REV	DESCRIPTION	DATE	BY	CHK.	APPR.



Properties Material Design

Use **Steel scaffold tube 48.3x3.2 mm.**

D_o :Outside Diameter	=	48.30 mm.
t :Thickness	=	3.20 mm.
W :Unit Weight	=	4.37 kg/m.
A :Section area	=	4.53 cm ²
I_x, I_y :Moment of inertia	=	11.60 cm ⁴
Z_x, Z_y :Modulus of section	=	4.86 cm ³
r_x, r_y :Radius of gyration	=	1.60 cm.
E :Modulus of elasticity	=	2,100,000 ksc.
EI :Modulus of elasticity x Moment of inertia	=	2.44E+07
F_y :Yield strength	=	2,450.00 ksc.
F_u :Tensile Strength	=	4,000.00 ksc.
K :Effective Length Factors (Pined - Pined Support)	=	1.00

Fitting

Type	Load Type	Safe Working load (kg.)	Unit weight (kg/pcl.)
Putlog Coupler	Force to pull the tube axially out of the coupler	204.00	1.00
Right Angle Coupler	Slip along a tube	637.50	1.10
Swivel Coupler	Slip along a tube	637.50	1.13
Beam Clamp	Slip along a tube	3,059.00	1.50
Plank Clamp	Slip along a tube	51.00	0.72
Joint Sleeve	Tension	306.00	1.50

Scaffold Boards (Metal)

Unit Weight	=	0.0025 kg/cm ²
I_x :Moment of inertia	=	207.19 cm ⁴
EI :Modulus of elasticity x Moment of inertia	=	4.35E+08

Permissible Load		
Suppoer Intervals	Permissible Load	Deflection
90 cm.	0.030 kg/m2	0.15 cm.
120 cm.	0.018 kg/m2	0.60 cm.
150 cm.	0.018 kg/m2	0.60 cm.
180 cm.	0.015 kg/m2	0.90 cm.

Access Ladders - Aluminum

Unit Weight	=	0.04 kg/cm
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Ledder Beam : Steel scaffold tube 48.3x3.2 mm.

Unit Weight	=	0.11 kg/cm
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CALCULATION SCAFFOLDING REPORT

Job No

SC-02

Sheet No

1

Rev

0

Part

Job Title Scaffolding for lifting 500 kg

Ref

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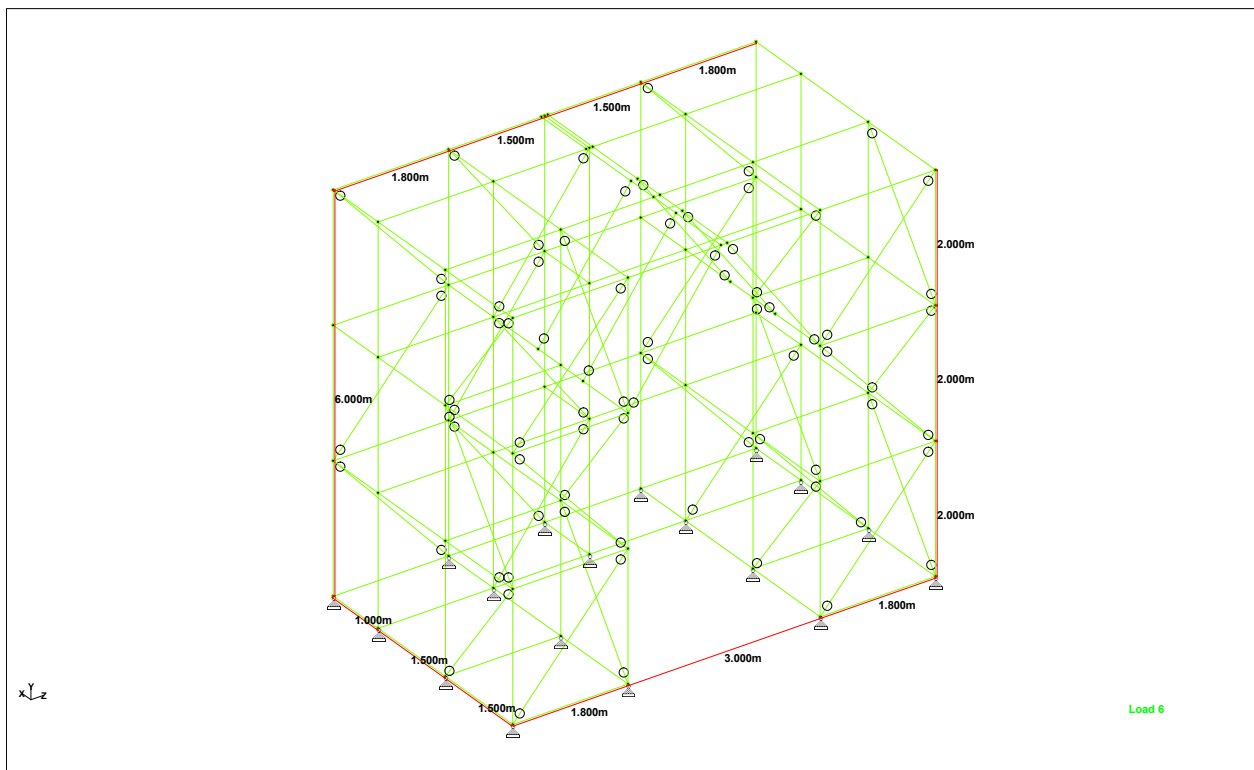
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ISOMETRIC VIEW

Job Information

Engineer

Checked

Approved

Name:

Date: 23-Jul-26

Structure Type SPACE FRAME

Number of Nodes	90	Highest Node	90
Number of Elements	218	Highest Beam	220

Number of Basic Load Cases	-2
Number of Combination Load Cases	4

Included in this printout are data for:

All The Whole Structure

Included in this printout are results for load cases:

Type	L/C	Name
Primary	1	DL
Primary	2	LL CASE 1 (LIFTING AT MID SPAN)
Combination	3	DL+LL1+SW X
Primary	4	LL CASE 2 (LIFTING AN OFF CENTER P)
Primary	5	LL1 - SWx
Combination	6	DL+LL2+SW X
Primary	7	LL1 - SWz
Combination	8	DL+LL1+SW Z
Combination	9	DL+LL2+SW Z
Primary	10	LL2 - SWx
Primary	11	LL2 - SW Z

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Section Properties

Prop	Section	Area (cm ²)	I _{yy} (cm ⁴)	I _{zz} (cm ⁴)	J (cm ⁴)	Material
1	PIP483.2	4.530	11.600	11.600	23.171	STEEL

Materials

Mat	Name	E (kg/cm ²)	v	Density (kg/m ³)	α (°F)
1	STEEL	2.04E+6	0.300	7.83E+3	6E -6
2	STAINLESSSTEEL	1.97E+6	0.300	7.83E+3	10E -6
3	ALUMINUM	703E+3	0.330	2.71E+3	13E -6
4	CONCRETE	221E+3	0.170	2.41E+3	5E -6

Combination Load Cases

Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
3	DL+LL1+SW X	1	DL	1.00
		2	LL CASE 1 (LIFTING AT MID SPAN)	1.00
		5	LL1 - SWx	1.00
6	DL+LL2+SW X	1	DL	1.00
		4	LL CASE 2 (LIFTING AN OFF CENTER POINT)	1.00
		10	LL2 - SWx	1.00
8	DL+LL1+SW Z	1	DL	1.00
		2	LL CASE 1 (LIFTING AT MID SPAN)	1.00
		7	LL1 - SWz	1.00
9	DL+LL2+SW Z	1	DL	1.00
		4	LL CASE 2 (LIFTING AN OFF CENTER POINT)	1.00
		11	LL2 - SW Z	1.00

1 DL : Selfweight

Direction	Factor	Assigned Geometry
Y	-1.000	ALL

2 LL CASE 1 (LIFTING AT MID SPAN) : Node Loads

Node	FX (kg)	FY (kg)	FZ (kg)	MX (kg·cm)	MY (kg·cm)	MZ (kg·cm)
75	-	-325.000	-	-	-	-
79	-	-325.000	-	-	-	-

Dynamic Load (แรงจากการกระชาก)

Dynamic Amplification Factor (DAF) = 1.3

Equipment weight = 500 kg

Design load = 500 * 1.3

= 650 kg ----> 325 kg/leg

4 LL CASE 2 (LIFTING AN OFF CENTER POINT) : Node Loads

Node	FX (kg)	FY (kg)	FZ (kg)	MX (kg·cm)	MY (kg·cm)	MZ (kg·cm)
89	-	-325.000	-	-	-	-
90	-	-325.000	-	-	-	-

Horizontal (Lateral) Load Due to Hoisting Operation
(แรงด้านข้างขณะปฏิบัติกรยก)

Electric Hoist / Crane = 2%-5%

Manual Chain Block = 5%-10%

Assum DAF Factor = 7%

Equipment weight = 500 kg

Design load = 500 * 0.07

= 35 kg --> 17.50 kg/leg

5 LL1 - SWx : Node Loads

Node	FX (kg)	FY (kg)	FZ (kg)	MX (kg·cm)	MY (kg·cm)	MZ (kg·cm)
75	-17.500	-	-	-	-	-
79	-17.500	-	-	-	-	-



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7 LL1 - SWz : Node Loads

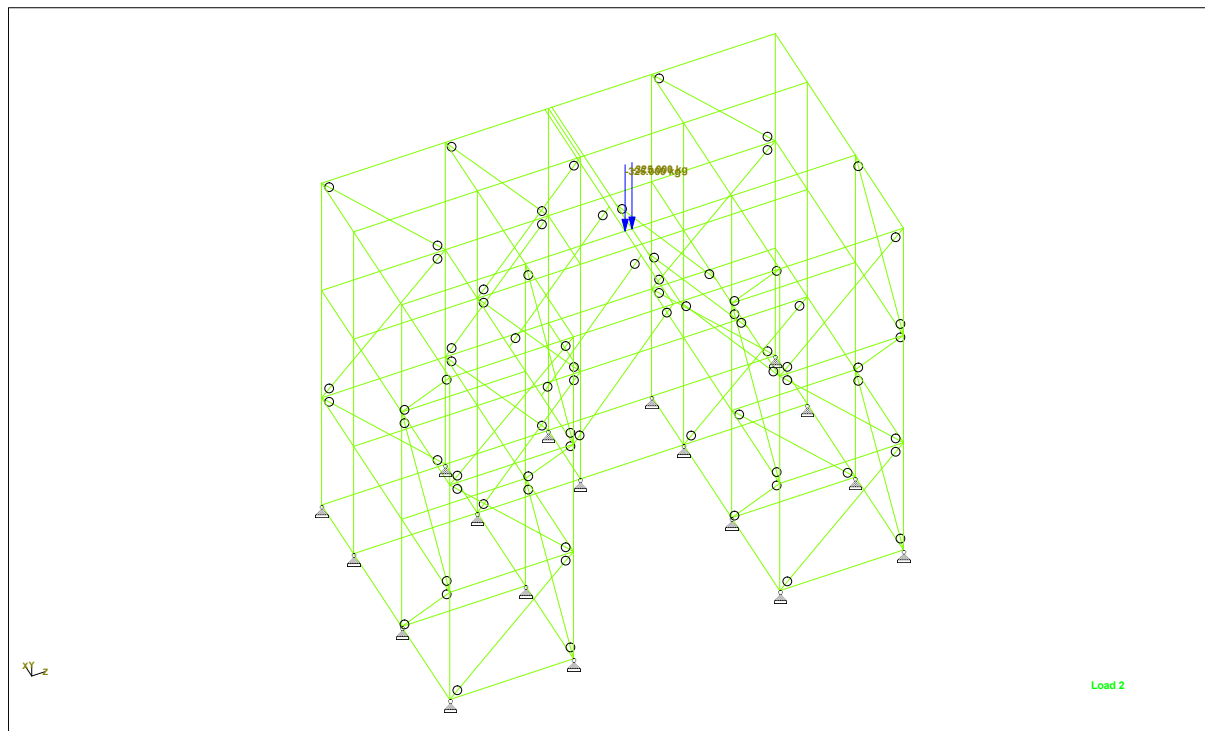
Node	FX (kg)	FY (kg)	FZ (kg)	MX (kg·cm)	MY (kg·cm)	MZ (kg·cm)
75	-	-	-17.500	-	-	-
79	-	-	-17.500	-	-	-

10 LL2 - SWx : Node Loads

Node	FX (kg)	FY (kg)	FZ (kg)	MX (kg·cm)	MY (kg·cm)	MZ (kg·cm)
89	-17.500	-	-	-	-	-
90	-17.500	-	-	-	-	-

11 LL2 - SW Z : Node Loads

Node	FX (kg)	FY (kg)	FZ (kg)	MX (kg·cm)	MY (kg·cm)	MZ (kg·cm)
89	-	-	-17.500	-	-	-
90	-	-	-17.500	-	-	-

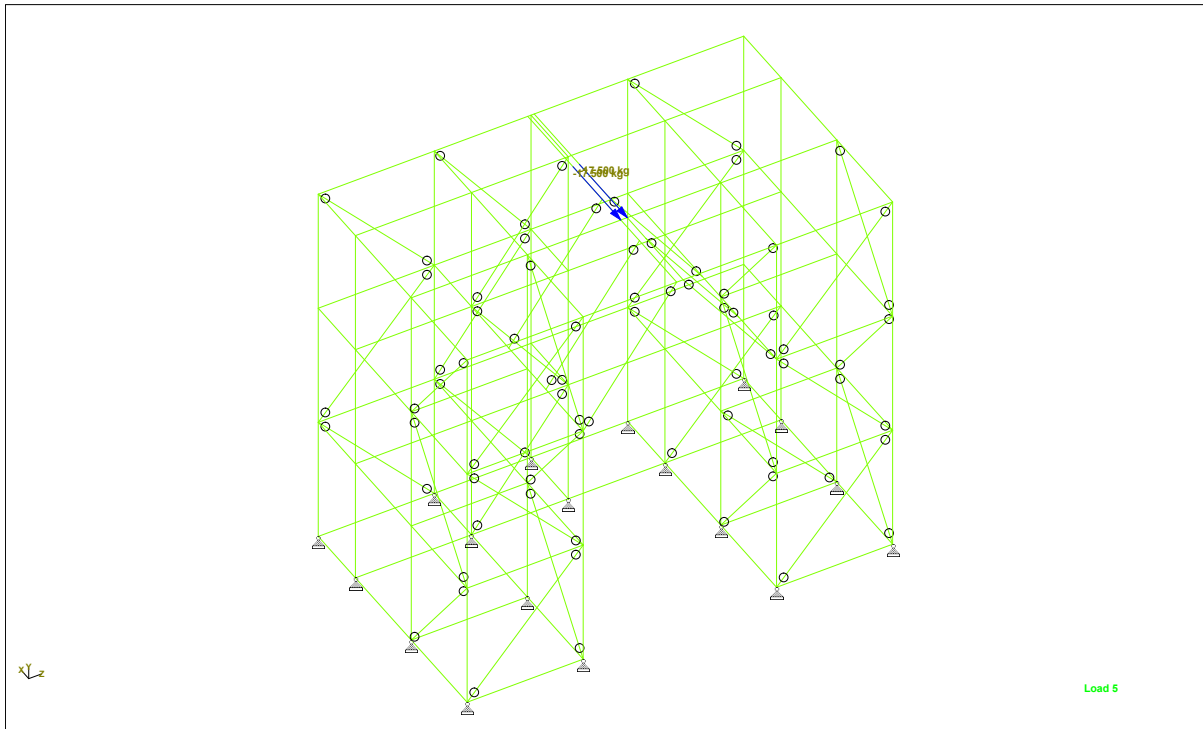


LL case 1 (Lifting at mid span) = 325kg/leg = 650 kg

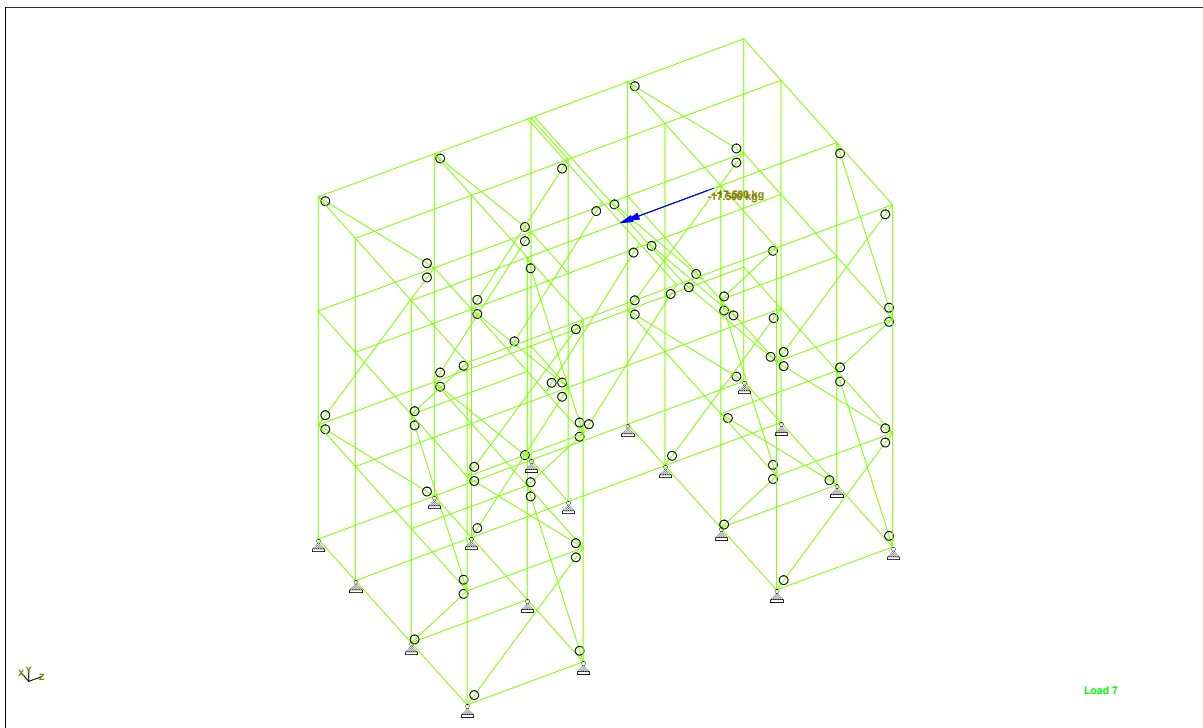


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LL1 - SWx : 17.5 kg/leg



LL1 - SWz : 17.5 kg/leg



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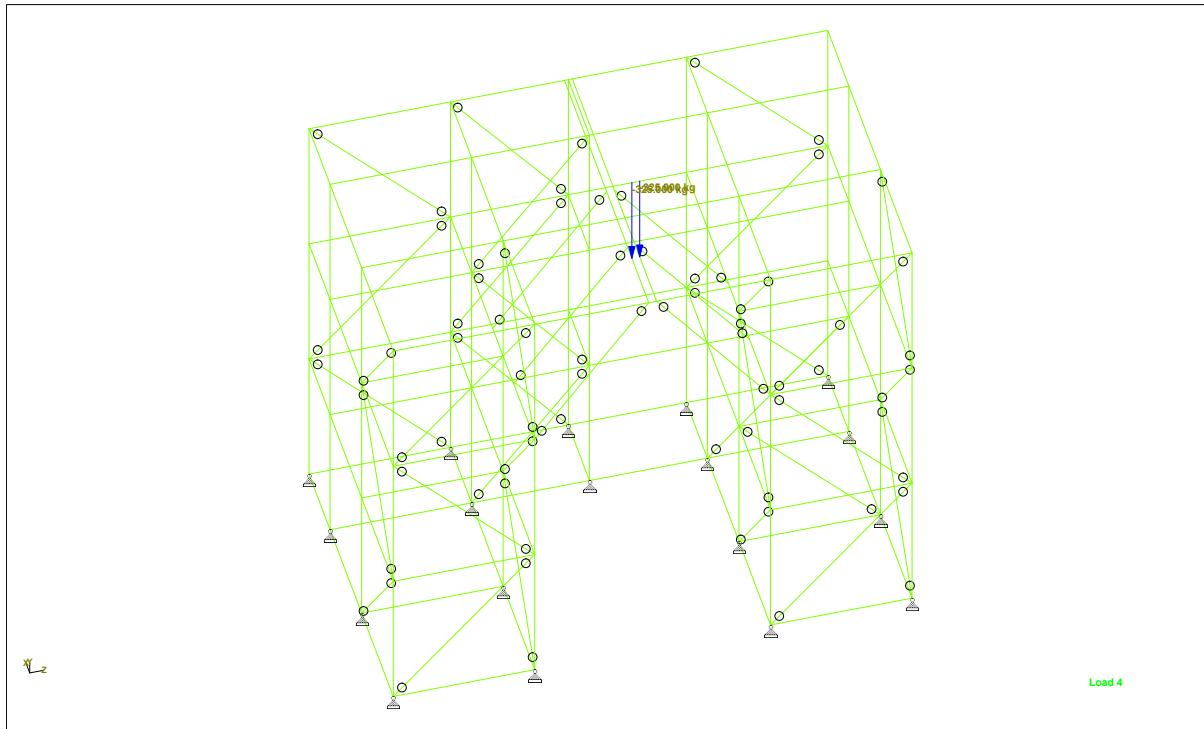
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By Date 23-Jul-26 Chd

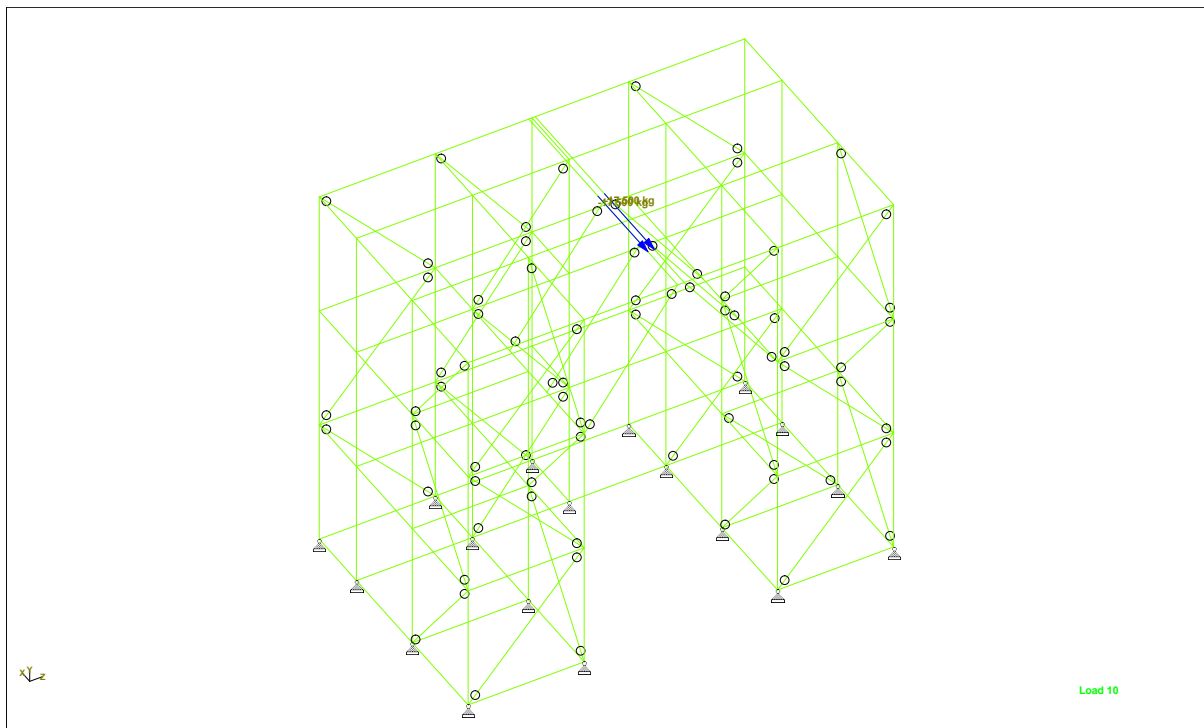
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LL case 2 (Lifting an off center) = 325 kg/leg = 650 kg



LL2 -SWz : 17.5 kg/leg



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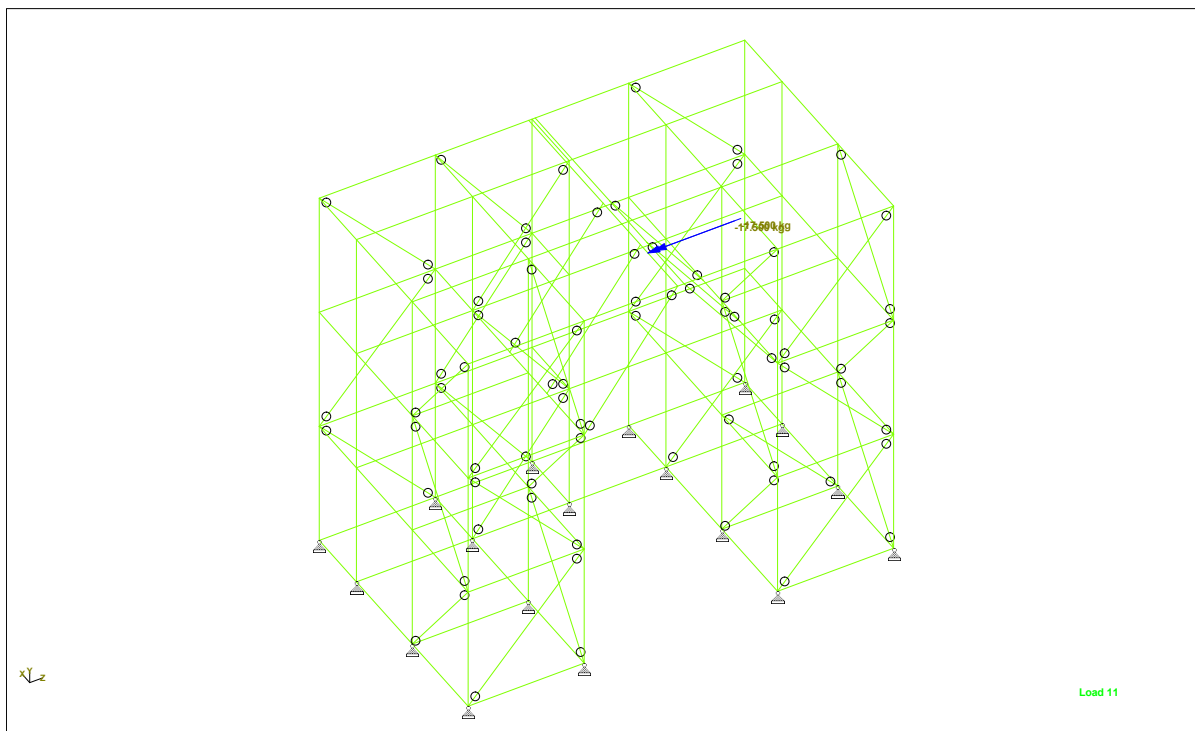
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LL2 - SWz : 17.5 kg/leg

Reaction Summary

	Node	L/C	Horizontal	Vertical	Horizontal	Moment		
			FX (kg)	FY (kg)	FZ (kg)	MX (kg'cm)	MY (kg'cm)	MZ (kg'cm)
Max FX	17	6:DL+LL2+SW	16.690	134.575	-0.773	0.000	0.000	0.000
Min FX	57	8:DL+LL1+SW	-4.703	324.541	2.832	0.000	0.000	0.000
Max FY	21	8:DL+LL1+SW	-0.226	353.118	-0.386	0.000	0.000	0.000
Min FY	21	10:LL2 - SWx	0.068	-64.605	-0.019	0.000	0.000	0.000
Max FZ	1	9:DL+LL2+SW	0.434	244.795	114.159	0.000	0.000	0.000
Min FZ	65	6:DL+LL2+SW	-0.293	146.154	-95.445	0.000	0.000	0.000
Max MX	1	1:DL	0.362	84.464	8.645	0.000	0.000	0.000
Min MX	1	1:DL	0.362	84.464	8.645	0.000	0.000	0.000
Max MY	1	1:DL	0.362	84.464	8.645	0.000	0.000	0.000
Min MY	1	1:DL	0.362	84.464	8.645	0.000	0.000	0.000
Max MZ	1	1:DL	0.362	84.464	8.645	0.000	0.000	0.000
Min MZ	1	1:DL	0.362	84.464	8.645	0.000	0.000	0.000

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Beam End Force Summary

The signs of the forces at end B of each beam have been reversed. For example: this means that the Min Fx entry gives the largest tension value for an beam.

	Beam	Node	L/C	Axial	Shear	Torsion	Bending		
				Fx (kg)	Fy (kg)	Fz (kg)	Mx (kg·cm)	My (kg·cm)	Mz (kg·cm)
Max Fx	48	21	8:DL+LL1+SW	344.763	0.204	-0.503	-1.493	-33.221	26.144
Min Fx	179	3	9:DL+LL2+SW	-162.406	-3.194	-0.000	-49.956	-0.000	-0.000
Max Fy	216	88	9:DL+LL2+SW	-41.281	232.701	-47.544	-32.751	2.1E+3	-1.59E+3
Min Fy	213	23	9:DL+LL2+SW	10.654	-155.251	-83.885	6.251	-676.148	4.02E+3
Max Fz	170	79	6:DL+LL2+SW	-15.420	40.568	105.606	-38.344	-3.04E+3	312.565
Min Fz	163	75	9:DL+LL2+SW	40.250	42.362	-111.887	43.778	3.16E+3	353.653
Max Mx	156	20	6:DL+LL2+SW	-57.540	2.601	-3.594	1.07E+3	314.914	30.910
Min Mx	160	76	9:DL+LL2+SW	-64.929	2.357	-2.080	-1.06E+3	230.731	-3.503
Max My	213	85	9:DL+LL2+SW	10.654	-153.477	-83.885	6.251	3.52E+3	-3.69E+3
Min My	207	27	8:DL+LL1+SW	6.970	-35.709	-60.449	-24.356	-3.36E+3	1.3E+3
Max Mz	213	23	9:DL+LL2+SW	10.654	-155.251	-83.885	6.251	-676.148	4.02E+3
Min Mz	210	79	8:DL+LL1+SW	-16.366	150.104	-78.660	80.386	-2.59E+3	-6.64E+3

Beam End Displacement Summary

Displacements shown in italic indicate the presence of an offset

	Beam	Node	L/C	X	Y	Z	Resultant
				(mm)	(mm)	(mm)	(mm)
Max X	28	20	8:DL+LL1+SW	0.308	-0.050	-0.043	0.315
Min X	215	89	10:LL2 - SWx	-0.724	0.007	0.001	0.724
Max Y	121	82	4:LL CASE 2 (L	0.043	0.233	2.372	2.384
Min Y	159	75	8:DL+LL1+SW	0.250	-6.820	-0.404	6.836
Max Z	128	59	3:DL+LL1+SW	0.054	-0.119	4.538	4.540
Min Z	31	23	8:DL+LL1+SW	0.150	-0.143	-4.892	4.896
Max Rst	159	75	8:DL+LL1+SW	0.250	-6.820	-0.404	6.836

Statics Check Results

L/C		FX (kg)	FY (kg)	FZ (kg)	MX (kg·cm)	MY (kg·cm)	MZ (kg·cm)
1:DL	Loads	0.000	-1.31E+3	-0.000	433E+3	0.001	-277E+3
1:DL	Reactions	-0.000	1.31E+3	0.000	-433E+3	-0.001	277E+3
	Difference	-0.000	-0.000	-0.000	-0.001	0.000	-0.001
2:LL CASE 1 (LIF	Loads	0.000	-650.000	0.000	215E+3	0.000	-97.5E+3
2:LL CASE 1 (LIF	Reactions	0.000	650.000	-0.000	-215E+3	0.001	97.5E+3
	Difference	0.000	-0.000	-0.000	-0.010	0.001	-0.009
4:LL CASE 2 (LIF	Loads	0.000	-650.000	0.000	215E+3	0.000	-52E+3
4:LL CASE 2 (LIF	Reactions	0.000	650.000	-0.000	-215E+3	0.001	52E+3
	Difference	0.000	-0.000	-0.000	-0.001	0.001	0.008
5:LL1 - SWx	Loads	-35.000	0.000	0.000	0.000	-11.6E+3	21E+3
5:LL1 - SWx	Reactions	35.000	0.000	-0.000	0.002	11.6E+3	-21E+3
	Difference	-0.000	0.000	-0.000	0.002	0.001	0.002
7:LL1 - SWz	Loads	0.000	0.000	-35.000	-21E+3	5.25E+3	0.000
7:LL1 - SWz	Reactions	-0.000	0.000	35.000	21E+3	-5.25E+3	-0.000
	Difference	-0.000	0.000	-0.000	-0.003	0.001	-0.000
10:LL2 - SWx	Loads	-35.000	0.000	0.000	0.000	-11.6E+3	21E+3
10:LL2 - SWx	Reactions	35.000	0.000	-0.000	0.002	11.6E+3	-21E+3
	Difference	-0.000	0.000	-0.000	0.002	0.001	0.002
11:LL2 - SW Z	Loads	0.000	0.000	-35.000	-21E+3	2.8E+3	0.000
11:LL2 - SW Z	Reactions	-0.000	0.000	35.000	21E+3	-2.8E+3	-0.000
	Difference	-0.000	0.000	-0.000	-0.005	0.000	-0.000

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Utilization Ratio

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm ²)	Iz (cm ⁴)	Iy (cm ⁴)	Ix (cm ⁴)
1	PIP483.2	PIP483.2	0.036	1.000	0.036	Sec. E1	9	4.530	11.600	11.600	23.200
2	PIP483.2	PIP483.2	0.028	1.000	0.028	Sec. E1	9	4.530	11.600	11.600	23.200
3	PIP483.2	PIP483.2	0.015	1.000	0.015	Eq. H3-1	3	4.530	11.600	11.600	23.200
4	PIP483.2	PIP483.2	0.010	1.000	0.010	Eq. H1-1b	8	4.530	11.600	11.600	23.200
5	PIP483.2	PIP483.2	0.055	1.000	0.055	Eq. H1-1b	8	4.530	11.600	11.600	23.200
6	PIP483.2	PIP483.2	0.273	1.000	0.273	Eq. H1-1b	8	4.530	11.600	11.600	23.200
7	PIP483.2	PIP483.2	0.018	1.000	0.018	Eq. H1-1b	8	4.530	11.600	11.600	23.200
8	PIP483.2	PIP483.2	0.025	1.000	0.025	Eq. H1-1b	8	4.530	11.600	11.600	23.200
9	PIP483.2	PIP483.2	0.144	1.000	0.144	Eq. H1-1b	8	4.530	11.600	11.600	23.200
10	PIP483.2	PIP483.2	0.140	1.000	0.140	Eq. H1-1b	3	4.530	11.600	11.600	23.200
11	PIP483.2	PIP483.2	0.009	1.000	0.009	Eq. H1-1b	6	4.530	11.600	11.600	23.200
12	PIP483.2	PIP483.2	0.061	1.000	0.061	Eq. H1-1b	8	4.530	11.600	11.600	23.200
13	PIP483.2	PIP483.2	0.290	1.000	0.290	Eq. H1-1b	8	4.530	11.600	11.600	23.200
14	PIP483.2	PIP483.2	0.029	1.000	0.029	Eq. H1-1b	8	4.530	11.600	11.600	23.200
15	PIP483.2	PIP483.2	0.015	1.000	0.015	Sec. E1	1	4.530	11.600	11.600	23.200
16	PIP483.2	PIP483.2	0.011	1.000	0.011	Eq. H1-1b	8	4.530	11.600	11.600	23.200
17	PIP483.2	PIP483.2	0.012	1.000	0.012	Eq. H3-1	3	4.530	11.600	11.600	23.200
18	PIP483.2	PIP483.2	0.006	1.000	0.006	Eq. H1-1b	3	4.530	11.600	11.600	23.200
19	PIP483.2	PIP483.2	0.028	1.000	0.028	Eq. H1-1b	3	4.530	11.600	11.600	23.200
20	PIP483.2	PIP483.2	0.106	1.000	0.106	Eq. H1-1b	8	4.530	11.600	11.600	23.200
21	PIP483.2	PIP483.2	0.014	1.000	0.014	Eq. H1-1b	8	4.530	11.600	11.600	23.200
22	PIP483.2	PIP483.2	0.018	1.000	0.018	Sec. E1	9	4.530	11.600	11.600	23.200
23	PIP483.2	PIP483.2	0.011	1.000	0.011	Sec. E1	8	4.530	11.600	11.600	23.200
24	PIP483.2	PIP483.2	0.009	1.000	0.009	Eq. H1-1b	8	4.530	11.600	11.600	23.200
25	PIP483.2	PIP483.2	0.011	1.000	0.011	Eq. H1-1b	9	4.530	11.600	11.600	23.200
26	PIP483.2	PIP483.2	0.052	1.000	0.052	Eq. H1-1b	8	4.530	11.600	11.600	23.200
27	PIP483.2	PIP483.2	0.216	1.000	0.216	Eq. H1-1b	8	4.530	11.600	11.600	23.200
28	PIP483.2	PIP483.2	0.036	1.000	0.036	Eq. H1-1b	8	4.530	11.600	11.600	23.200
29	PIP483.2	PIP483.2	0.015	1.000	0.015	Eq. H1-1b	8	4.530	11.600	11.600	23.200
30	PIP483.2	PIP483.2	0.091	1.000	0.091	Eq. H1-1b	8	4.530	11.600	11.600	23.200
31	PIP483.2	PIP483.2	0.113	1.000	0.113	Eq. H1-1b	9	4.530	11.600	11.600	23.200
32	PIP483.2	PIP483.2	0.215	1.000	0.215	Eq. H1-1b	3	4.530	11.600	11.600	23.200
33	PIP483.2	PIP483.2	0.012	1.000	0.012	Eq. H1-1b	3	4.530	11.600	11.600	23.200
34	PIP483.2	PIP483.2	0.043	1.000	0.043	Eq. H1-1b	8	4.530	11.600	11.600	23.200
35	PIP483.2	PIP483.2	0.132	1.000	0.132	Eq. H1-1b	8	4.530	11.600	11.600	23.200
36	PIP483.2	PIP483.2	0.047	1.000	0.047	Eq. H1-1b	8	4.530	11.600	11.600	23.200
37	PIP483.2	PIP483.2	0.011	1.000	0.011	Eq. H1-1b	3	4.530	11.600	11.600	23.200
38	PIP483.2	PIP483.2	0.012	1.000	0.012	Eq. H1-1b	3	4.530	11.600	11.600	23.200
39	PIP483.2	PIP483.2	0.027	1.000	0.027	Eq. H1-1b	3	4.530	11.600	11.600	23.200
40	PIP483.2	PIP483.2	0.025	1.000	0.025	Eq. H1-1b	3	4.530	11.600	11.600	23.200
41	PIP483.2	PIP483.2	0.034	1.000	0.034	Eq. H1-1b	6	4.530	11.600	11.600	23.200
42	PIP483.2	PIP483.2	0.142	1.000	0.142	Eq. H1-1b	6	4.530	11.600	11.600	23.200
43	PIP483.2	PIP483.2	0.124	1.000	0.124	Eq. H1-1b	9	4.530	11.600	11.600	23.200
44	PIP483.2	PIP483.2	0.011	1.000	0.011	Eq. H1-1b	8	4.530	11.600	11.600	23.200
45	PIP483.2	PIP483.2	0.049	1.000	0.049	Eq. H1-1b	9	4.530	11.600	11.600	23.200
46	PIP483.2	PIP483.2	0.770	1.000	0.770	Eq. H1-1b	9	4.530	11.600	11.600	23.200
47	PIP483.2	PIP483.2	0.043	1.000	0.043	Eq. H1-1b	4	4.530	11.600	11.600	23.200
48	PIP483.2	PIP483.2	0.115	1.000	0.115	Sec. E1	8	4.530	11.600	11.600	23.200
49	PIP483.2	PIP483.2	0.225	1.000	0.225	Eq. H1-1b	9	4.530	11.600	11.600	23.200
50	PIP483.2	PIP483.2	0.208	1.000	0.208	Eq. H1-1b	9	4.530	11.600	11.600	23.200
51	PIP483.2	PIP483.2	0.010	1.000	0.010	Eq. H1-1b	6	4.530	11.600	11.600	23.200
52	PIP483.2	PIP483.2	0.063	1.000	0.063	Eq. H1-1b	8	4.530	11.600	11.600	23.200
53	PIP483.2	PIP483.2	0.501	1.000	0.501	Eq. H1-1b	8	4.530	11.600	11.600	23.200
54	PIP483.2	PIP483.2	0.040	1.000	0.040	Eq. H3-1	3	4.530	11.600	11.600	23.200
55	PIP483.2	PIP483.2	0.044	1.000	0.044	Sec. E1	8	4.530	11.600	11.600	23.200
56	PIP483.2	PIP483.2	0.052	1.000	0.052	Eq. H1-1b	8	4.530	11.600	11.600	23.200
57	PIP483.2	PIP483.2	0.041	1.000	0.041	Eq. H1-1b	8	4.530	11.600	11.600	23.200
58	PIP483.2	PIP483.2	0.005	1.000	0.005	Eq. H1-1b	1	4.530	11.600	11.600	23.200

 CALCULATION SCAFFOLDING REPORT	Job No SC-02	Sheet No 9	Rev 0
	Part		
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Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm ²)	Iz (cm ⁴)	Iy (cm ⁴)	Ix (cm ⁴)
59	PIP483.2	PIP483.2	0.027	1.000	0.027	Eq. H1-1b	6	4.530	11.600	11.600	23.200
60	PIP483.2	PIP483.2	0.180	1.000	0.180	Eq. H1-1b	3	4.530	11.600	11.600	23.200
61	PIP483.2	PIP483.2	0.025	1.000	0.025	Eq. H1-1b	3	4.530	11.600	11.600	23.200
62	PIP483.2	PIP483.2	0.019	1.000	0.019	Sec. E1	1	4.530	11.600	11.600	23.200
63	PIP483.2	PIP483.2	0.013	1.000	0.013	Sec. E1	1	4.530	11.600	11.600	23.200
64	PIP483.2	PIP483.2	0.008	1.000	0.008	Eq. H1-1b	9	4.530	11.600	11.600	23.200
65	PIP483.2	PIP483.2	0.010	1.000	0.010	Eq. H1-1b	8	4.530	11.600	11.600	23.200
66	PIP483.2	PIP483.2	0.020	1.000	0.020	Eq. H1-1b	8	4.530	11.600	11.600	23.200
67	PIP483.2	PIP483.2	0.093	1.000	0.093	Eq. H1-1b	8	4.530	11.600	11.600	23.200
68	PIP483.2	PIP483.2	0.058	1.000	0.058	Eq. H1-1b	3	4.530	11.600	11.600	23.200
69	PIP483.2	PIP483.2	0.010	1.000	0.010	Eq. H1-1b	8	4.530	11.600	11.600	23.200
70	PIP483.2	PIP483.2	0.019	1.000	0.019	Eq. H1-1b	3	4.530	11.600	11.600	23.200
71	PIP483.2	PIP483.2	0.045	1.000	0.045	Eq. H1-1b	3	4.530	11.600	11.600	23.200
72	PIP483.2	PIP483.2	0.043	1.000	0.043	Eq. H1-1b	3	4.530	11.600	11.600	23.200
73	PIP483.2	PIP483.2	0.029	1.000	0.029	Sec. E1	3	4.530	11.600	11.600	23.200
74	PIP483.2	PIP483.2	0.032	1.000	0.032	Sec. E1	3	4.530	11.600	11.600	23.200
75	PIP483.2	PIP483.2	0.078	1.000	0.078	Eq. H1-1b	8	4.530	11.600	11.600	23.200
76	PIP483.2	PIP483.2	0.003	1.000	0.003	Eq. H1-1b	6	4.530	11.600	11.600	23.200
77	PIP483.2	PIP483.2	0.017	1.000	0.017	Eq. H1-1b	3	4.530	11.600	11.600	23.200
78	PIP483.2	PIP483.2	0.014	1.000	0.014	Eq. H1-1b	5	4.530	11.600	11.600	23.200
79	PIP483.2	PIP483.2	0.093	1.000	0.093	Eq. H1-1b	3	4.530	11.600	11.600	23.200
80	PIP483.2	PIP483.2	0.018	1.000	0.018	Sec. E1	1	4.530	11.600	11.600	23.200
81	PIP483.2	PIP483.2	0.013	1.000	0.013	Sec. E1	1	4.530	11.600	11.600	23.200
82	PIP483.2	PIP483.2	0.024	1.000	0.024	Eq. H1-1b	3	4.530	11.600	11.600	23.200
83	PIP483.2	PIP483.2	0.010	1.000	0.010	Eq. H1-1b	1	4.530	11.600	11.600	23.200
84	PIP483.2	PIP483.2	0.011	1.000	0.011	Eq. H1-1b	6	4.530	11.600	11.600	23.200
85	PIP483.2	PIP483.2	0.088	1.000	0.088	Eq. H1-1b	3	4.530	11.600	11.600	23.200
86	PIP483.2	PIP483.2	0.106	1.000	0.106	Eq. H1-1b	8	4.530	11.600	11.600	23.200
87	PIP483.2	PIP483.2	0.009	1.000	0.009	Eq. H1-1b	1	4.530	11.600	11.600	23.200
88	PIP483.2	PIP483.2	0.010	1.000	0.010	Eq. H1-1b	1	4.530	11.600	11.600	23.200
89	PIP483.2	PIP483.2	0.045	1.000	0.045	Eq. H1-1b	3	4.530	11.600	11.600	23.200
90	PIP483.2	PIP483.2	0.043	1.000	0.043	Eq. H1-1b	3	4.530	11.600	11.600	23.200
91	PIP483.2	PIP483.2	0.031	1.000	0.031	Sec. E1	3	4.530	11.600	11.600	23.200
92	PIP483.2	PIP483.2	0.045	1.000	0.045	Eq. H1-1b	3	4.530	11.600	11.600	23.200
93	PIP483.2	PIP483.2	0.037	1.000	0.037	Eq. H1-1b	8	4.530	11.600	11.600	23.200
94	PIP483.2	PIP483.2	0.006	1.000	0.006	Eq. H1-1b	3	4.530	11.600	11.600	23.200
95	PIP483.2	PIP483.2	0.009	1.000	0.009	Eq. H1-1b	6	4.530	11.600	11.600	23.200
96	PIP483.2	PIP483.2	0.184	1.000	0.184	Eq. H1-1b	3	4.530	11.600	11.600	23.200
97	PIP483.2	PIP483.2	0.025	1.000	0.025	Eq. H1-1b	3	4.530	11.600	11.600	23.200
98	PIP483.2	PIP483.2	0.019	1.000	0.019	Sec. E1	8	4.530	11.600	11.600	23.200
99	PIP483.2	PIP483.2	0.011	1.000	0.011	Sec. E1	1	4.530	11.600	11.600	23.200
100	PIP483.2	PIP483.2	0.009	1.000	0.009	Eq. H1-2	3	4.530	11.600	11.600	23.200
101	PIP483.2	PIP483.2	0.012	1.000	0.012	Eq. H1-1b	8	4.530	11.600	11.600	23.200
102	PIP483.2	PIP483.2	0.015	1.000	0.015	Eq. H1-1b	8	4.530	11.600	11.600	23.200
103	PIP483.2	PIP483.2	0.125	1.000	0.125	Eq. H1-1b	3	4.530	11.600	11.600	23.200
104	PIP483.2	PIP483.2	0.038	1.000	0.038	Eq. H1-1b	3	4.530	11.600	11.600	23.200
105	PIP483.2	PIP483.2	0.011	1.000	0.011	Eq. H1-1b	8	4.530	11.600	11.600	23.200
106	PIP483.2	PIP483.2	0.013	1.000	0.013	Eq. H1-1b	6	4.530	11.600	11.600	23.200
107	PIP483.2	PIP483.2	0.025	1.000	0.025	Eq. H1-1b	3	4.530	11.600	11.600	23.200
108	PIP483.2	PIP483.2	0.022	1.000	0.022	Eq. H1-1b	3	4.530	11.600	11.600	23.200
109	PIP483.2	PIP483.2	0.017	1.000	0.017	Sec. E1	1	4.530	11.600	11.600	23.200
110	PIP483.2	PIP483.2	0.011	1.000	0.011	Eq. H3-1	3	4.530	11.600	11.600	23.200
111	PIP483.2	PIP483.2	0.012	1.000	0.012	Eq. H3-1	8	4.530	11.600	11.600	23.200
112	PIP483.2	PIP483.2	0.005	1.000	0.005	Eq. H1-1b	3	4.530	11.600	11.600	23.200
113	PIP483.2	PIP483.2	0.009	1.000	0.009	Eq. H1-1b	6	4.530	11.600	11.600	23.200
114	PIP483.2	PIP483.2	0.103	1.000	0.103	Eq. H1-1b	3	4.530	11.600	11.600	23.200
115	PIP483.2	PIP483.2	0.010	1.000	0.010	Eq. H1-1b	8	4.530	11.600	11.600	23.200
116	PIP483.2	PIP483.2	0.016	1.000	0.016	Sec. E1	1	4.530	11.600	11.600	23.200

 CALCULATION SCAFFOLDING REPORT	Job No SC-02	Sheet No 10	Rev 0
	Part		
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Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm ²)	Iz (cm ⁴)	Iy (cm ⁴)	Ix (cm ⁴)
117	PIP483.2	PIP483.2	0.012	1.000	0.012	Sec. E1	1	4.530	11.600	11.600	23.200
118	PIP483.2	PIP483.2	0.008	1.000	0.008	Eq. H1-1b	1	4.530	11.600	11.600	23.200
119	PIP483.2	PIP483.2	0.012	1.000	0.012	Eq. H1-1b	6	4.530	11.600	11.600	23.200
120	PIP483.2	PIP483.2	0.026	1.000	0.026	Eq. H1-1b	4	4.530	11.600	11.600	23.200
121	PIP483.2	PIP483.2	0.498	1.000	0.498	Eq. H1-1b	3	4.530	11.600	11.600	23.200
122	PIP483.2	PIP483.2	0.040	1.000	0.040	Eq. H3-1	8	4.530	11.600	11.600	23.200
123	PIP483.2	PIP483.2	0.008	1.000	0.008	Eq. H1-1b	6	4.530	11.600	11.600	23.200
124	PIP483.2	PIP483.2	0.013	1.000	0.013	Eq. H1-1b	3	4.530	11.600	11.600	23.200
125	PIP483.2	PIP483.2	0.271	1.000	0.271	Eq. H1-1b	3	4.530	11.600	11.600	23.200
126	PIP483.2	PIP483.2	0.024	1.000	0.024	Eq. H1-1b	8	4.530	11.600	11.600	23.200
127	PIP483.2	PIP483.2	0.102	1.000	0.102	Sec. E1	8	4.530	11.600	11.600	23.200
128	PIP483.2	PIP483.2	0.241	1.000	0.241	Eq. H1-1b	9	4.530	11.600	11.600	23.200
129	PIP483.2	PIP483.2	0.209	1.000	0.209	Eq. H1-1b	6	4.530	11.600	11.600	23.200
130	PIP483.2	PIP483.2	0.019	1.000	0.019	Eq. H1-1b	3	4.530	11.600	11.600	23.200
131	PIP483.2	PIP483.2	0.084	1.000	0.084	Eq. H1-1b	3	4.530	11.600	11.600	23.200
132	PIP483.2	PIP483.2	0.108	1.000	0.108	Eq. H1-1b	4	4.530	11.600	11.600	23.200
133	PIP483.2	PIP483.2	0.213	1.000	0.213	Eq. H1-1b	8	4.530	11.600	11.600	23.200
134	PIP483.2	PIP483.2	0.043	1.000	0.043	Eq. H1-1b	3	4.530	11.600	11.600	23.200
135	PIP483.2	PIP483.2	0.163	1.000	0.163	Eq. H1-1b	3	4.530	11.600	11.600	23.200
136	PIP483.2	PIP483.2	0.148	1.000	0.148	Eq. H1-1b	8	4.530	11.600	11.600	23.200
137	PIP483.2	PIP483.2	0.009	1.000	0.009	Eq. H1-1b	8	4.530	11.600	11.600	23.200
138	PIP483.2	PIP483.2	0.027	1.000	0.027	Eq. H1-1b	6	4.530	11.600	11.600	23.200
139	PIP483.2	PIP483.2	0.755	1.000	0.755	Eq. H1-1b	6	4.530	11.600	11.600	23.200
140	PIP483.2	PIP483.2	0.048	1.000	0.048	Eq. H1-1b	9	4.530	11.600	11.600	23.200
141	PIP483.2	PIP483.2	0.010	1.000	0.010	Eq. H1-1b	6	4.530	11.600	11.600	23.200
142	PIP483.2	PIP483.2	0.019	1.000	0.019	Eq. H1-1b	3	4.530	11.600	11.600	23.200
143	PIP483.2	PIP483.2	0.258	1.000	0.258	Eq. H1-1b	3	4.530	11.600	11.600	23.200
144	PIP483.2	PIP483.2	0.040	1.000	0.040	Eq. H1-1b	8	4.530	11.600	11.600	23.200
145	PIP483.2	PIP483.2	0.081	1.000	0.081	Sec. E1	6	4.530	11.600	11.600	23.200
146	PIP483.2	PIP483.2	0.113	1.000	0.113	Eq. H1-1b	6	4.530	11.600	11.600	23.200
147	PIP483.2	PIP483.2	0.116	1.000	0.116	Eq. H1-1b	6	4.530	11.600	11.600	23.200
148	PIP483.2	PIP483.2	0.009	1.000	0.009	Eq. H1-1b	6	4.530	11.600	11.600	23.200
149	PIP483.2	PIP483.2	0.024	1.000	0.024	Eq. H1-1b	3	4.530	11.600	11.600	23.200
150	PIP483.2	PIP483.2	0.193	1.000	0.193	Eq. H1-1b	3	4.530	11.600	11.600	23.200
151	PIP483.2	PIP483.2	0.035	1.000	0.035	Eq. H1-1b	9	4.530	11.600	11.600	23.200
152	PIP483.2	PIP483.2	0.069	1.000	0.069	Sec. E1	6	4.530	11.600	11.600	23.200
153	PIP483.2	PIP483.2	0.016	1.000	0.016	Eq. H3-1	3	4.530	11.600	11.600	23.200
154	PIP483.2	PIP483.2	0.025	1.000	0.025	Eq. H1-1b	9	4.530	11.600	11.600	23.200
155	PIP483.2	PIP483.2	0.362	1.000	0.362	Eq. H1-1b	3	4.530	11.600	11.600	23.200
156	PIP483.2	PIP483.2	0.121	1.000	0.121	Eq. H3-1	6	4.530	11.600	11.600	23.200
157	PIP483.2	PIP483.2	0.057	1.000	0.057	Eq. H1-1b	3	4.530	11.600	11.600	23.200
158	PIP483.2	PIP483.2	0.041	1.000	0.041	Eq. H1-1b	3	4.530	11.600	11.600	23.200
159	PIP483.2	PIP483.2	0.359	1.000	0.359	Eq. H1-1b	3	4.530	11.600	11.600	23.200
160	PIP483.2	PIP483.2	0.120	1.000	0.120	Eq. H3-1	9	4.530	11.600	11.600	23.200
161	PIP483.2	PIP483.2	0.124	1.000	0.124	Eq. H1-1b	8	4.530	11.600	11.600	23.200
162	PIP483.2	PIP483.2	0.343	1.000	0.343	Eq. H1-1b	8	4.530	11.600	11.600	23.200
163	PIP483.2	PIP483.2	0.967	1.000	0.967	Eq. H1-1b	3	4.530	11.600	11.600	23.200
164	PIP483.2	PIP483.2	0.110	1.000	0.110	Eq. H1-1b	8	4.530	11.600	11.600	23.200
165	PIP483.2	PIP483.2	0.041	1.000	0.041	Eq. H1-1b	3	4.530	11.600	11.600	23.200
166	PIP483.2	PIP483.2	0.402	1.000	0.402	Eq. H1-1b	9	4.530	11.600	11.600	23.200
167	PIP483.2	PIP483.2	0.148	1.000	0.148	Eq. H1-1b	6	4.530	11.600	11.600	23.200
168	PIP483.2	PIP483.2	0.123	1.000	0.123	Eq. H1-1b	8	4.530	11.600	11.600	23.200
169	PIP483.2	PIP483.2	0.328	1.000	0.328	Eq. H1-1b	3	4.530	11.600	11.600	23.200
170	PIP483.2	PIP483.2	0.994	1.000	0.994	Eq. H1-1b	8	4.530	11.600	11.600	23.200
171	PIP483.2	PIP483.2	0.067	1.000	0.067	Sec. E1	6	4.530	11.600	11.600	23.200
172	PIP483.2	PIP483.2	0.071	1.000	0.071	Sec. E1	9	4.530	11.600	11.600	23.200
175	PIP483.2	PIP483.2	0.018	1.000	0.018	Eq. H1-1b	3	4.530	11.600	11.600	23.200
176	PIP483.2	PIP483.2	0.019	1.000	0.019	Eq. H1-1b	3	4.530	11.600	11.600	23.200

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	Part		
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Utilization Ratio Cont...

Beam	Analysis Property	Design Property	Actual Ratio	Allowable Ratio	Ratio (Act./Allow.)	Clause	L/C	Ax (cm ²)	Iz (cm ⁴)	Iy (cm ⁴)	Ix (cm ⁴)
177	PIP483.2	PIP483.2	0.020	1.000	0.020	Eq. H1-1b	3	4.530	11.600	11.600	23.200
178	PIP483.2	PIP483.2	0.103	1.000	0.103	Sec. E1	9	4.530	11.600	11.600	23.200
179	PIP483.2	PIP483.2	0.035	1.000	0.035	Eq. H1-1b	9	4.530	11.600	11.600	23.200
180	PIP483.2	PIP483.2	0.030	1.000	0.030	Eq. H1-1b	9	4.530	11.600	11.600	23.200
181	PIP483.2	PIP483.2	0.025	1.000	0.025	Eq. H1-1b	6	4.530	11.600	11.600	23.200
182	PIP483.2	PIP483.2	0.020	1.000	0.020	Eq. H1-1b	6	4.530	11.600	11.600	23.200
183	PIP483.2	PIP483.2	0.027	1.000	0.027	Eq. H1-1b	3	4.530	11.600	11.600	23.200
184	PIP483.2	PIP483.2	0.034	1.000	0.034	Eq. H1-1b	6	4.530	11.600	11.600	23.200
185	PIP483.2	PIP483.2	0.089	1.000	0.089	Sec. E1	6	4.530	11.600	11.600	23.200
186	PIP483.2	PIP483.2	0.064	1.000	0.064	Sec. E1	9	4.530	11.600	11.600	23.200
187	PIP483.2	PIP483.2	0.020	1.000	0.020	Eq. H1-1b	8	4.530	11.600	11.600	23.200
188	PIP483.2	PIP483.2	0.024	1.000	0.024	Eq. H1-1b	6	4.530	11.600	11.600	23.200
189	PIP483.2	PIP483.2	0.020	1.000	0.020	Eq. H1-1b	3	4.530	11.600	11.600	23.200
190	PIP483.2	PIP483.2	0.020	1.000	0.020	Eq. H1-1b	3	4.530	11.600	11.600	23.200
191	PIP483.2	PIP483.2	0.018	1.000	0.018	Eq. H1-1b	3	4.530	11.600	11.600	23.200
192	PIP483.2	PIP483.2	0.018	1.000	0.018	Eq. H1-1b	3	4.530	11.600	11.600	23.200
193	PIP483.2	PIP483.2	0.038	1.000	0.038	Eq. H1-1b	3	4.530	11.600	11.600	23.200
194	PIP483.2	PIP483.2	0.028	1.000	0.028	Eq. H1-1b	8	4.530	11.600	11.600	23.200
195	PIP483.2	PIP483.2	0.024	1.000	0.024	Eq. H1-1b	3	4.530	11.600	11.600	23.200
196	PIP483.2	PIP483.2	0.019	1.000	0.019	Eq. H1-1b	6	4.530	11.600	11.600	23.200
197	PIP483.2	PIP483.2	0.024	1.000	0.024	Eq. H1-1b	3	4.530	11.600	11.600	23.200
198	PIP483.2	PIP483.2	0.018	1.000	0.018	Eq. H1-1b	3	4.530	11.600	11.600	23.200
199	PIP483.2	PIP483.2	0.019	1.000	0.019	Eq. H1-1b	3	4.530	11.600	11.600	23.200
200	PIP483.2	PIP483.2	0.025	1.000	0.025	Eq. H1-1b	8	4.530	11.600	11.600	23.200
201	PIP483.2	PIP483.2	0.024	1.000	0.024	Eq. H1-1b	9	4.530	11.600	11.600	23.200
202	PIP483.2	PIP483.2	0.023	1.000	0.023	Eq. H1-1b	1	4.530	11.600	11.600	23.200
203	PIP483.2	PIP483.2	0.024	1.000	0.024	Eq. H1-1b	8	4.530	11.600	11.600	23.200
204	PIP483.2	PIP483.2	0.028	1.000	0.028	Eq. H1-1b	8	4.530	11.600	11.600	23.200
205	PIP483.2	PIP483.2	0.020	1.000	0.020	Eq. H1-1b	8	4.530	11.600	11.600	23.200
206	PIP483.2	PIP483.2	0.022	1.000	0.022	Eq. H1-1b	8	4.530	11.600	11.600	23.200
207	PIP483.2	PIP483.2	0.511	1.000	0.511	Eq. H1-1b	8	4.530	11.600	11.600	23.200
208	PIP483.2	PIP483.2	0.488	1.000	0.488	Eq. H1-1b	3	4.530	11.600	11.600	23.200
209	PIP483.2	PIP483.2	0.952	1.000	0.952	Eq. H1-1b	3	4.530	11.600	11.600	23.200
210	PIP483.2	PIP483.2	0.986	1.000	0.986	Eq. H1-1b	8	4.530	11.600	11.600	23.200
211	PIP483.2	PIP483.2	0.092	1.000	0.092	Sec. E1	8	4.530	11.600	11.600	23.200
212	PIP483.2	PIP483.2	0.090	1.000	0.090	Sec. E1	3	4.530	11.600	11.600	23.200
213	PIP483.2	PIP483.2	0.771	1.000	0.771	Eq. H1-1b	9	4.530	11.600	11.600	23.200
214	PIP483.2	PIP483.2	0.755	1.000	0.755	Eq. H1-1b	6	4.530	11.600	11.600	23.200
215	PIP483.2	PIP483.2	0.871	1.000	0.871	Eq. H1-1b	9	4.530	11.600	11.600	23.200
216	PIP483.2	PIP483.2	0.829	1.000	0.829	Eq. H1-1b	6	4.530	11.600	11.600	23.200
217	PIP483.2	PIP483.2	0.126	1.000	0.126	Sec. E1	9	4.530	11.600	11.600	23.200
218	PIP483.2	PIP483.2	0.125	1.000	0.125	Sec. E1	6	4.530	11.600	11.600	23.200
219	PIP483.2	PIP483.2	0.872	1.000	0.872	Eq. H1-1b	9	4.530	11.600	11.600	23.200
220	PIP483.2	PIP483.2	0.828	1.000	0.828	Eq. H1-1b	6	4.530	11.600	11.600	23.200

Failed Members

There is no data of this type.

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Steel Design (Track 2) Beam 1 Check 1

check>		(BRITISH SECTIONS)				
1 ST	PIP483.2	PASS	Sec. E1	0.036	9	
	107.58 C		-0.66	-0.28	0.00	

SLENDERNESS						
Actual Slenderness Ratio	:	124.983	L/C	:	9	
Allowable Slenderness Ratio	:	200.000	LOC	:	0.00	

STRENGTH CHECKS						
Critical L/C	:	9	Ratio	:	0.036(PASS)	
Loc	:	0.00	Condition	:	Sec. E1	

DESIGN FORCES						
Fx:	1.076E+02 (C)	Fy:	-1.976E-01	Fz:	5.066E-01	
Mx:	-2.740E-01	My:	-6.616E-01	Mz:	-2.757E-01	

SECTION PROPERTIES (UNIT: CM)						
Azz:	2.460E+00	Ayy:	2.460E+00	Cw:	0.000E+00	
Szz:	4.803E+00	Syy:	4.803E+00			
Izz:	1.160E+01	Iyy:	1.160E+01	Ix:	2.320E+01	

MATERIAL PROPERTIES						
Fyld:	23999999.245	Fu:	39999998.741			

Actual Member Length: 2.000						
Design Parameters						
Kz:	1.00	Ky:	1.00	NSF:	1.00	
			SLF:	1.00	CSP:	
					12.00	

SECTION CLASS	FLANGE /	l1l	l1lp	l1lr		
	WEB					
Compression	Non-Slender	15.09	N/A	93.45		
	Non-Slender	15.09	N/A	93.45		
Flexure	Compact	15.09	59.47	263.36		
	Compact	15.09	59.47	263.36		

CHECK FOR TENSION						
	FORCE	CAPACITY	RATIO	CRITERIA	L/C LOC	
Yield	0.00E+00	6.51E+03	0.000	Eq. D2-1	1 0.00	
Rupture	0.00E+00	9.06E+03	0.000	Eq. D2-2	1 0.00	

CHECK FOR COMPRESSION						
	FORCE	CAPACITY	RATIO	CRITERIA	L/C LOC	
Maj Buck	1.08E+02	2.98E+03	0.036	Eq. E3-1	9 0.00	
Min Buck	1.08E+02	2.98E+03	0.036	Eq. E3-1	9 0.00	
Intermediate						
Results	Ag	KL/r	Fcr	Fe	Pn	
Maj Buck	4.53E-04	124.98	1.10E+07	1.29E+07	4.98E+03	
Min Buck	4.53E-04	124.98	1.10E+07	1.29E+07	4.98E+03	

CHECK FOR SHEAR						
	FORCE	CAPACITY	RATIO	CRITERIA	L/C LOC	
Major	-5.35E-01	1.95E+03	0.000	Eq. G6-1	1 0.00	
Minor	-3.37E-01	1.95E+03	0.000	Eq. G6-1	1 0.00	
Intermediate						
Results	Aw	Cv	Kv	h/tw	Vn	
Major	4.53E-04	0.00	0.00	0.00	3.26E+03	
Minor	4.53E-04	0.00	0.00	0.00	3.26E+03	

CHECK FOR TORSION						
	FORCE	CAPACITY	RATIO	CRITERIA	L/C LOC	
	-3.72E-01	8.82E+01	0.004	Eq. H3-1	8 0.00	
Intermediate	Fcr	Tn				
	1.44E+07	1.47E+02				

CHECK FOR YIELDING						
	FORCE	CAPACITY	RATIO	CRITERIA	L/C LOC	
Major	3.66E-01	9.37E+01	0.004	Eq. F8-1	1 0.00	
Minor	-6.62E-01	9.37E+01	0.007	Eq. F8-1	9 0.00	
Intermediate						
	Mn	My				
Major	1.56E+02	0.00E+00				
Minor	1.56E+02	0.00E+00				

CHECK FOR FLEXURE TENS/COMP INTERACTION						
	RATIO	CRITERIA	L/C	LOC		
Flexure Comp	0.028	Eq. H1-1b	9	0.00		
Flexure Tens	0.011	Eq. H1-1b	1	0.00		
Intermediate						
	Mcx /	Mrx /	Pc /			
	Mcy	Mry	Pr			
Flexure Comp	9.37E+01	2.76E-01	2.98E+03			
	9.37E+01	-6.62E-01	1.08E+02			



CALCULATION SCAFFOLDING REPORT

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SC-02

Sheet No

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0

Part

Job Title Scaffolding for lifting 500 kg

Ref

By

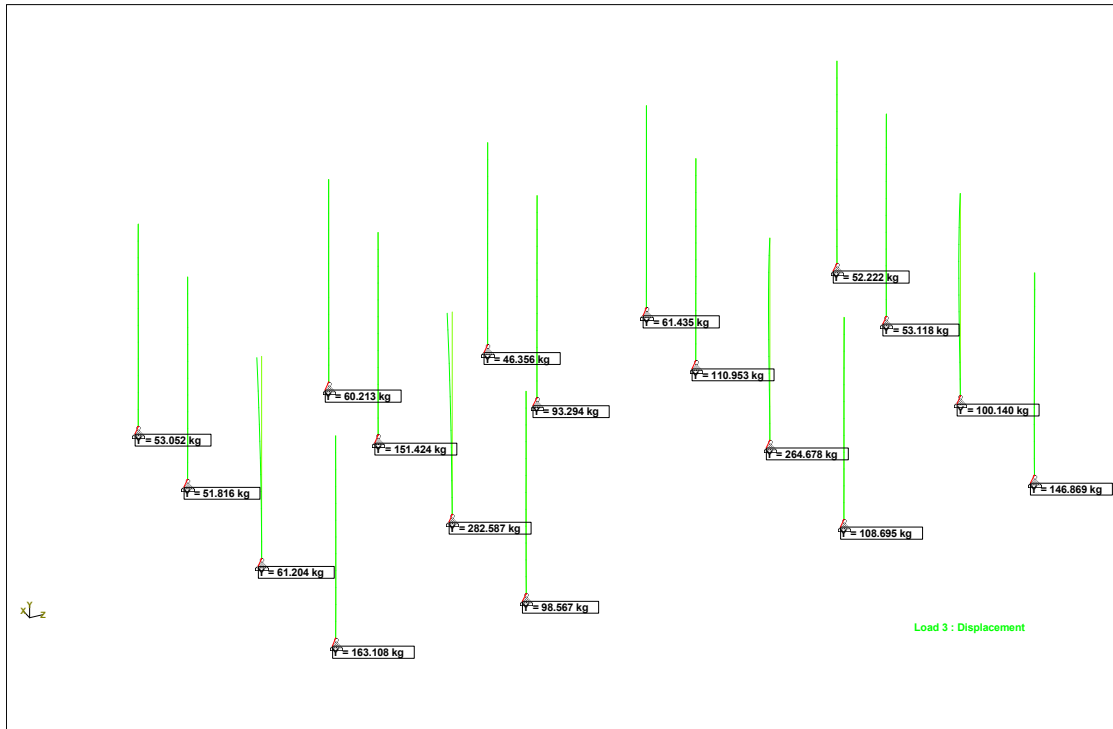
Date 23-Jul-26

Chd

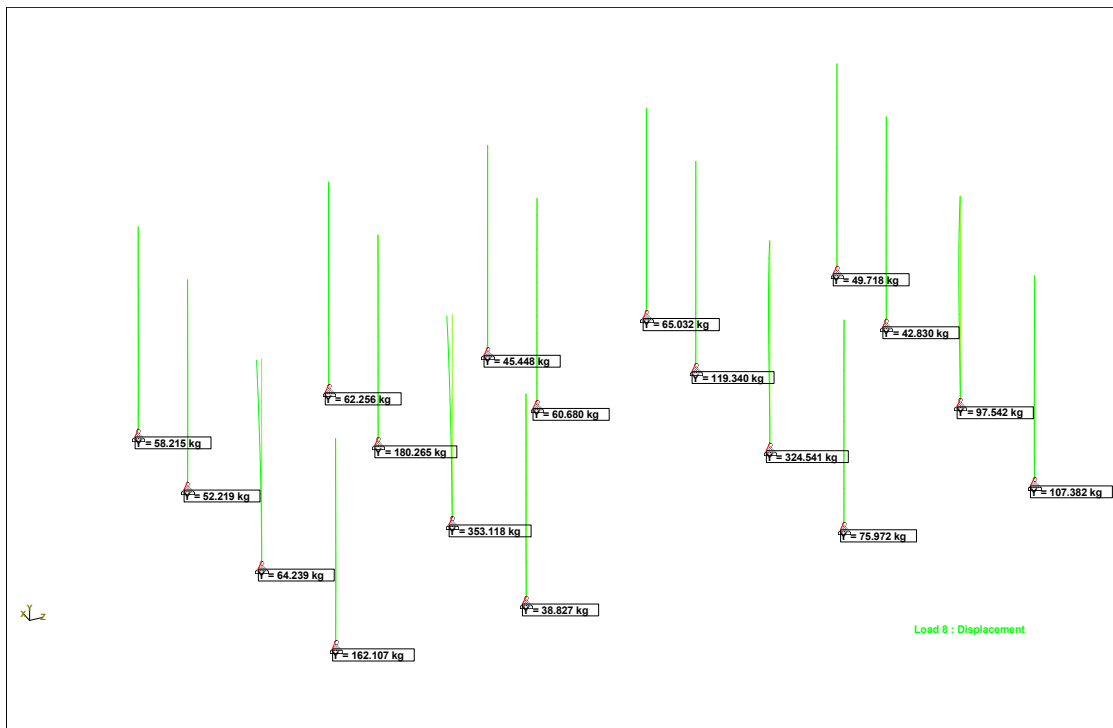
Client

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Max Reaction DL+LL1+SWx = 282.587 kg



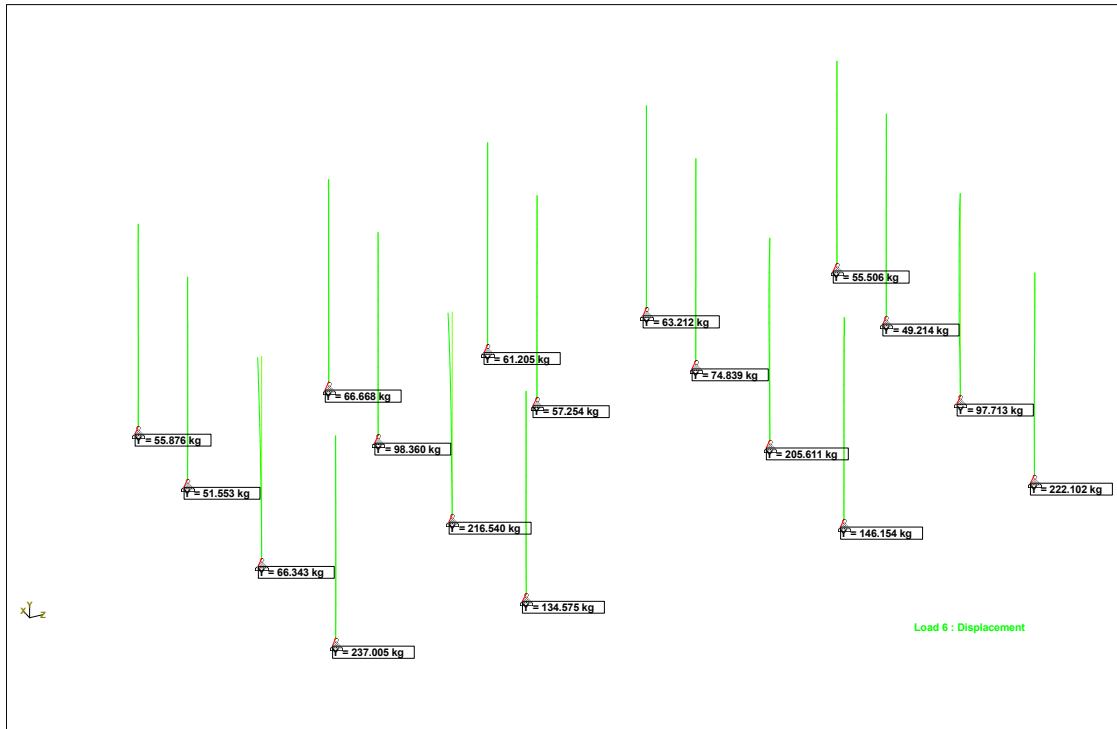
Max Reaction DL+LL1+SWz : 353.118 kg

นาย ชัยกฤษพงศ์ ยะปัญญา
กย. 92781

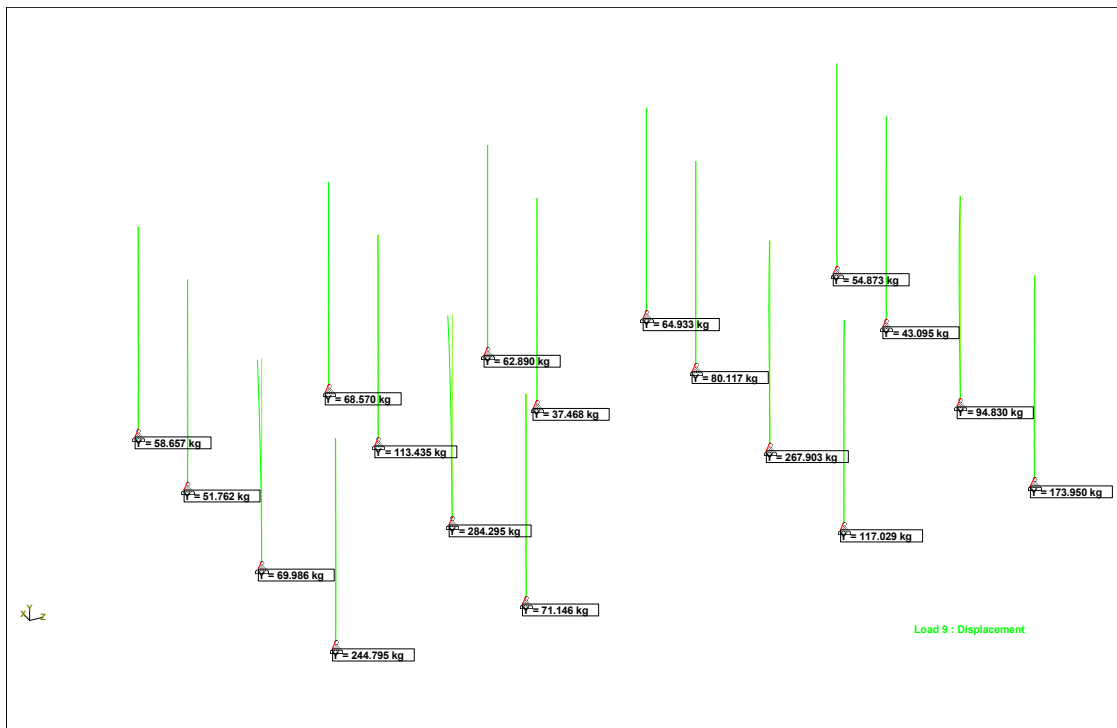


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Max Reaction DL+LL2+SWx : 216.540 kg

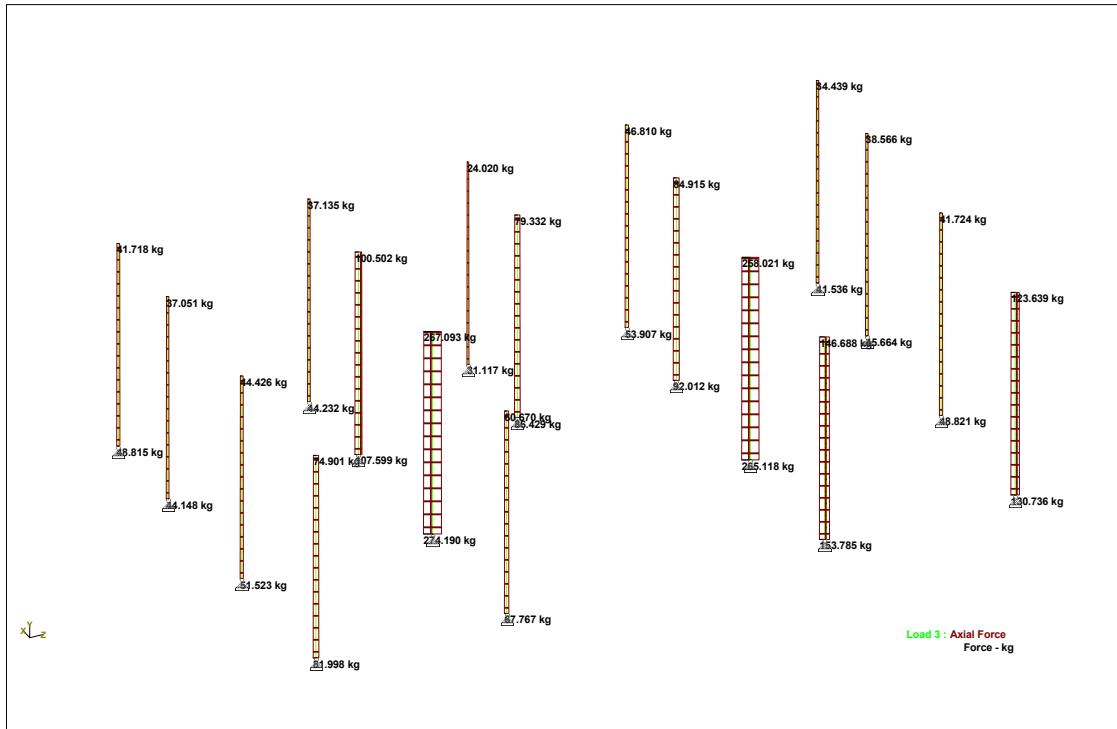


Max Reaction DL+LL2+SWz : 284.295 kg

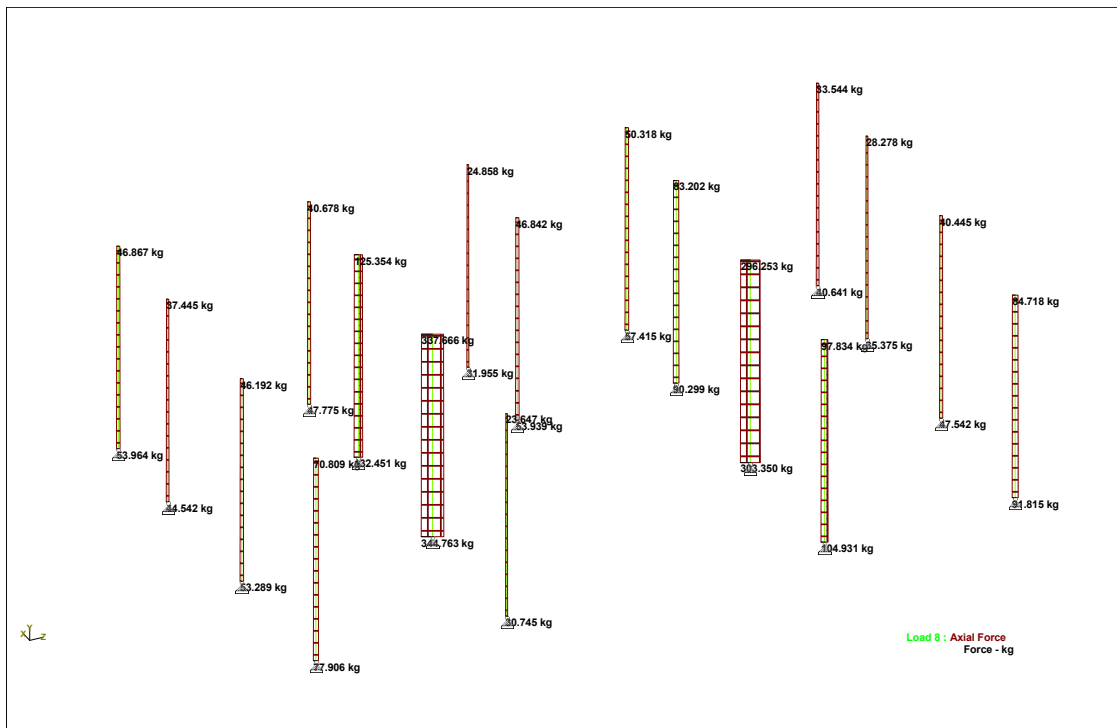


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Max Axial Force DL+LL1+SWx : 274.190 kg

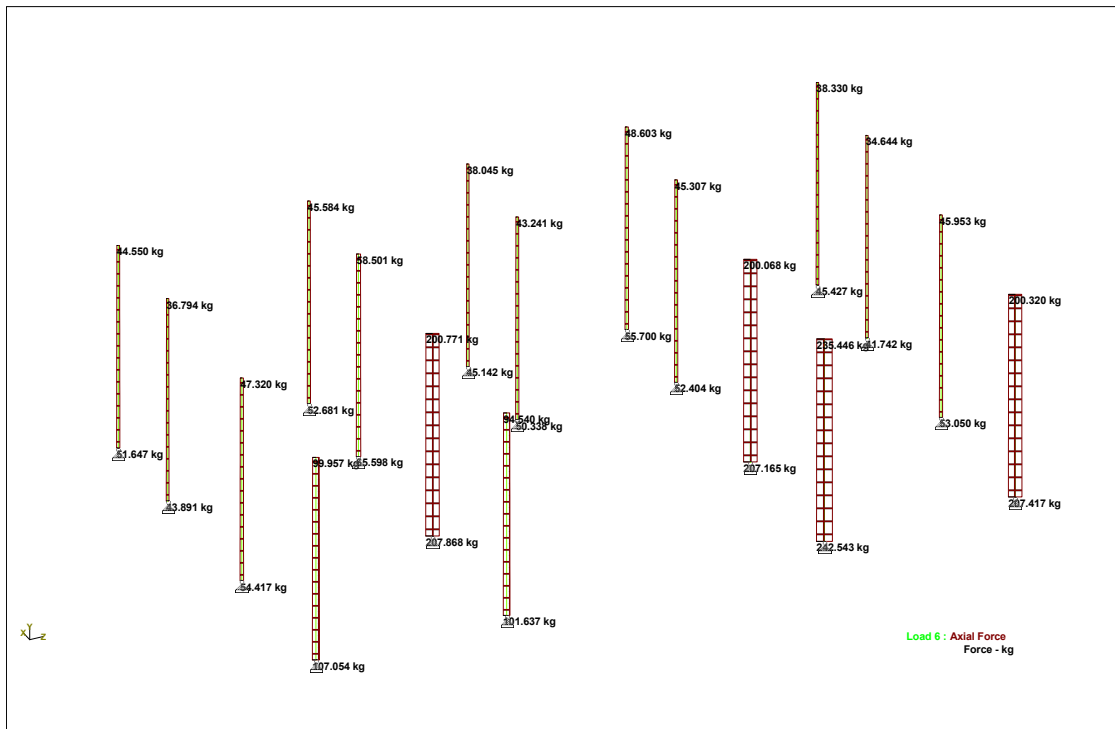


Max Axial Force DL+LL1+SWz : 344.763 kg

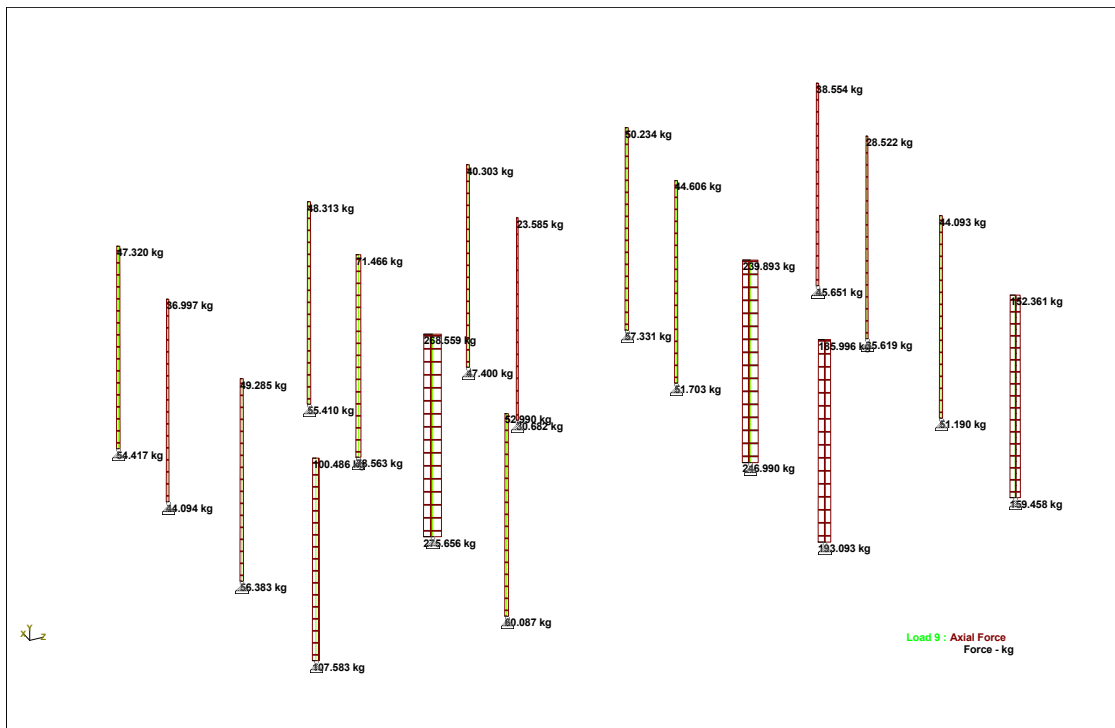


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Max Axial Force DL+LL2+SWx : 207.868 kg



Max Axial Force DL+LL2+SWz : 275.656 kg



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Part

Job Title Scaffolding for lifting 500 kg

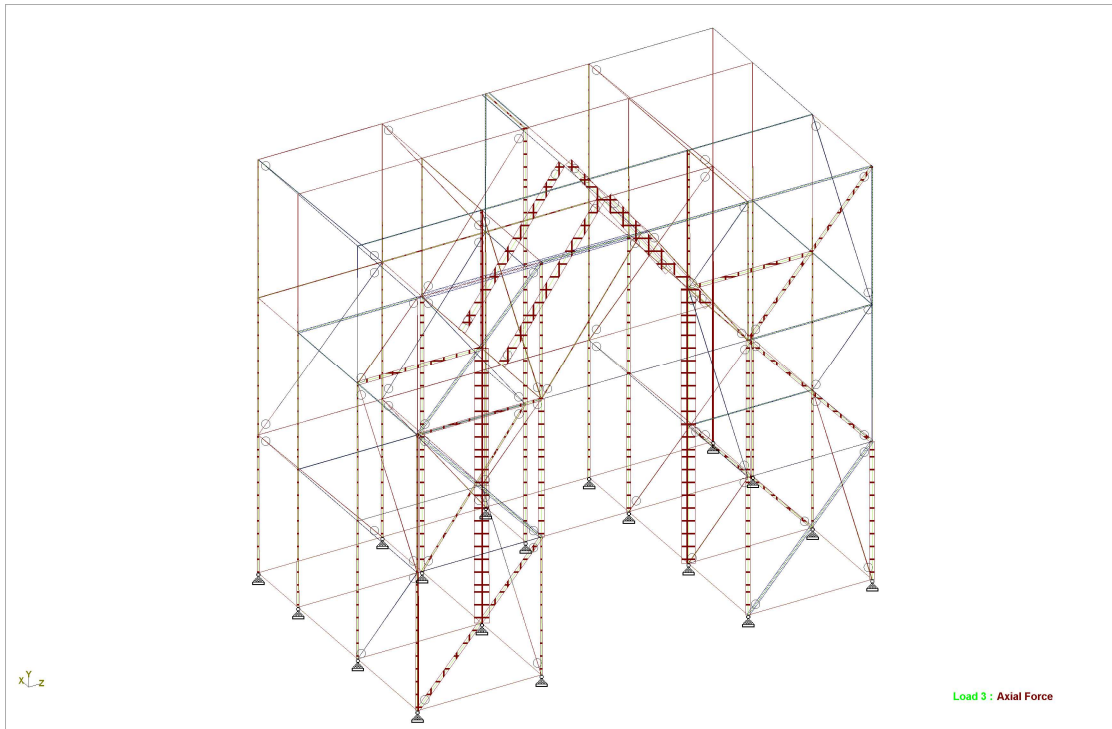
Ref

By Date 23-Jul-26 Chd

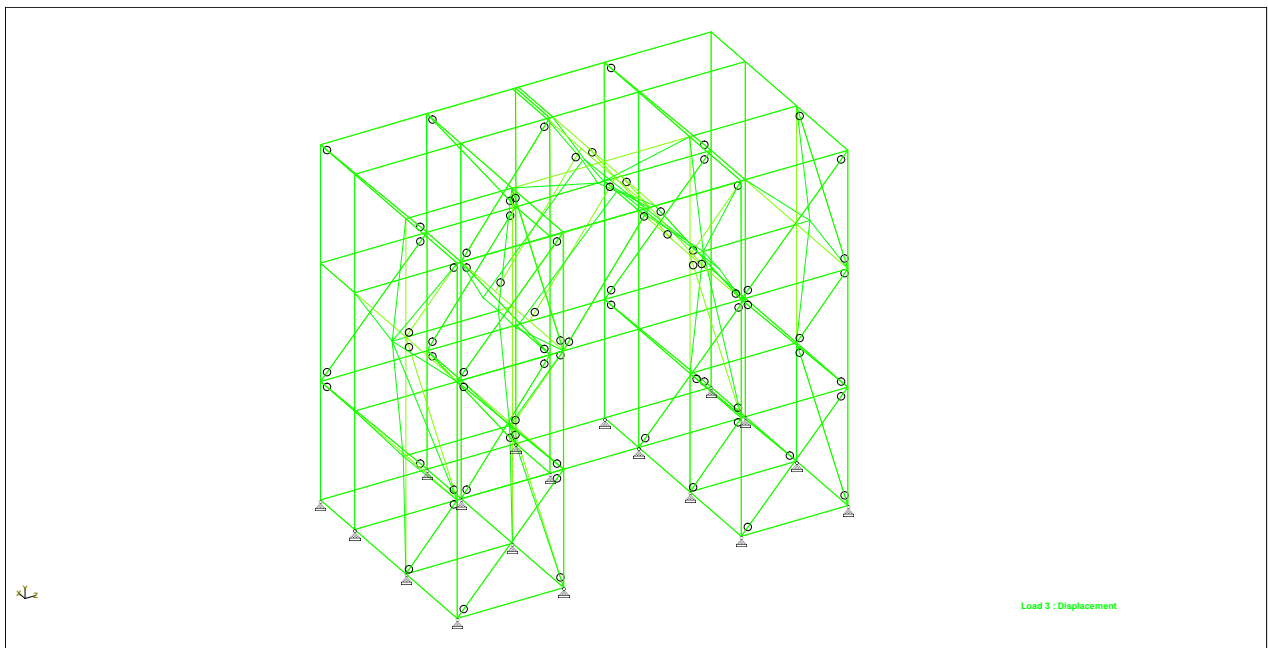
Client

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Axial Force (Input data was modified after picture taken)

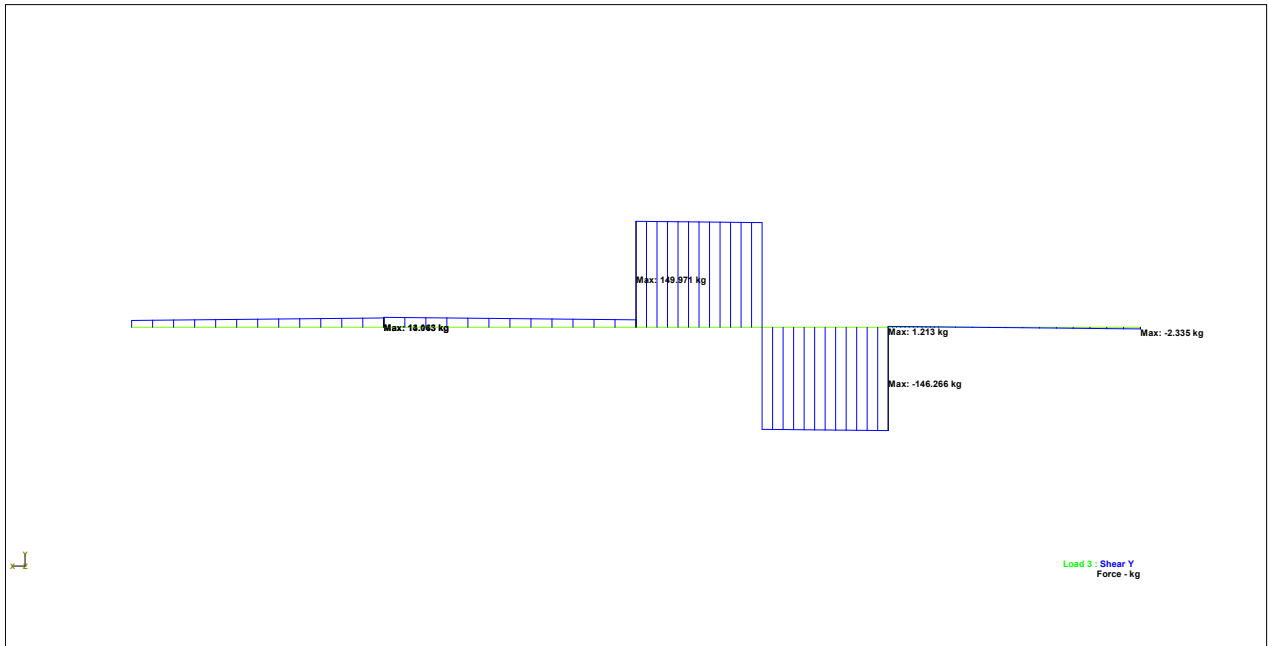


Failure Mode (Input data was modified after picture taken)

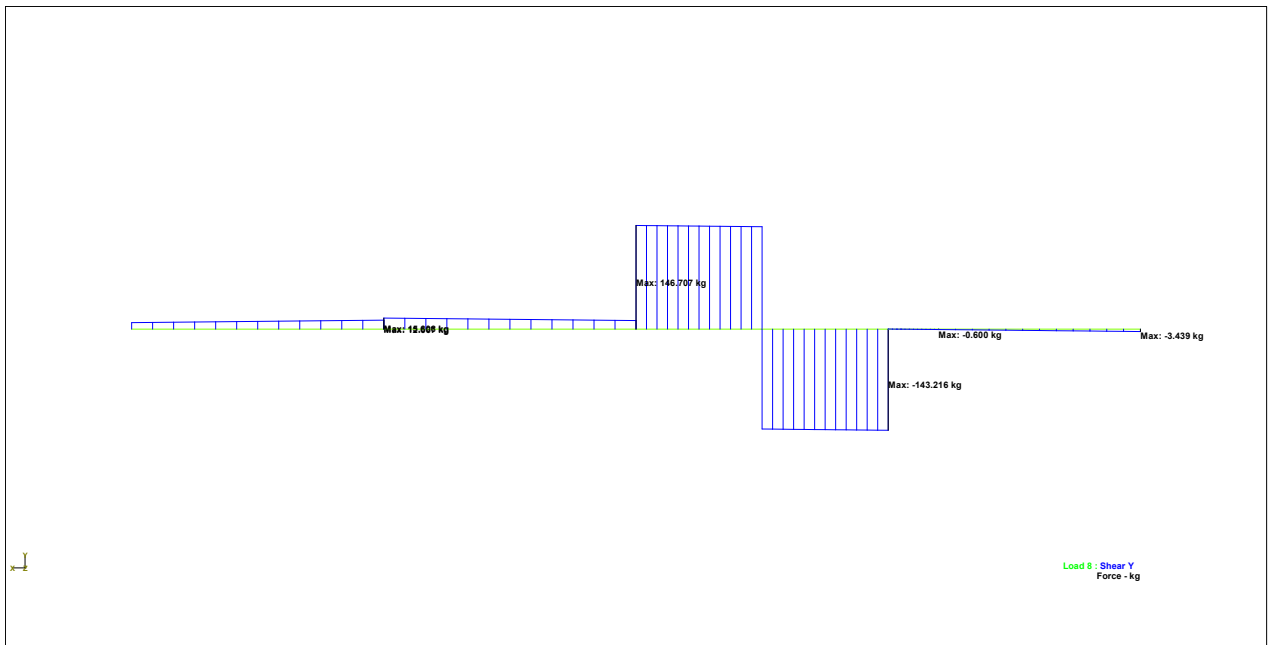


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Max shear at lifting frame DL+LL1+SWx : 149.971 kg

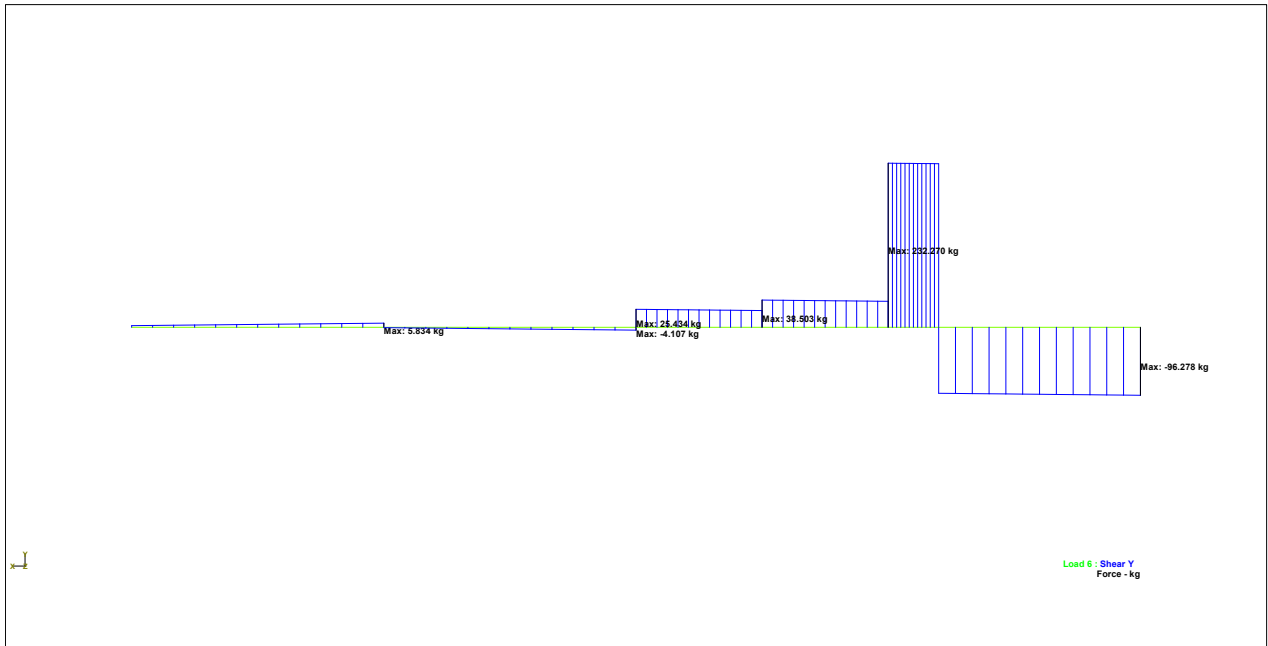


Max shear at lifting frame DL+LL1+SWz : 146.707 kg

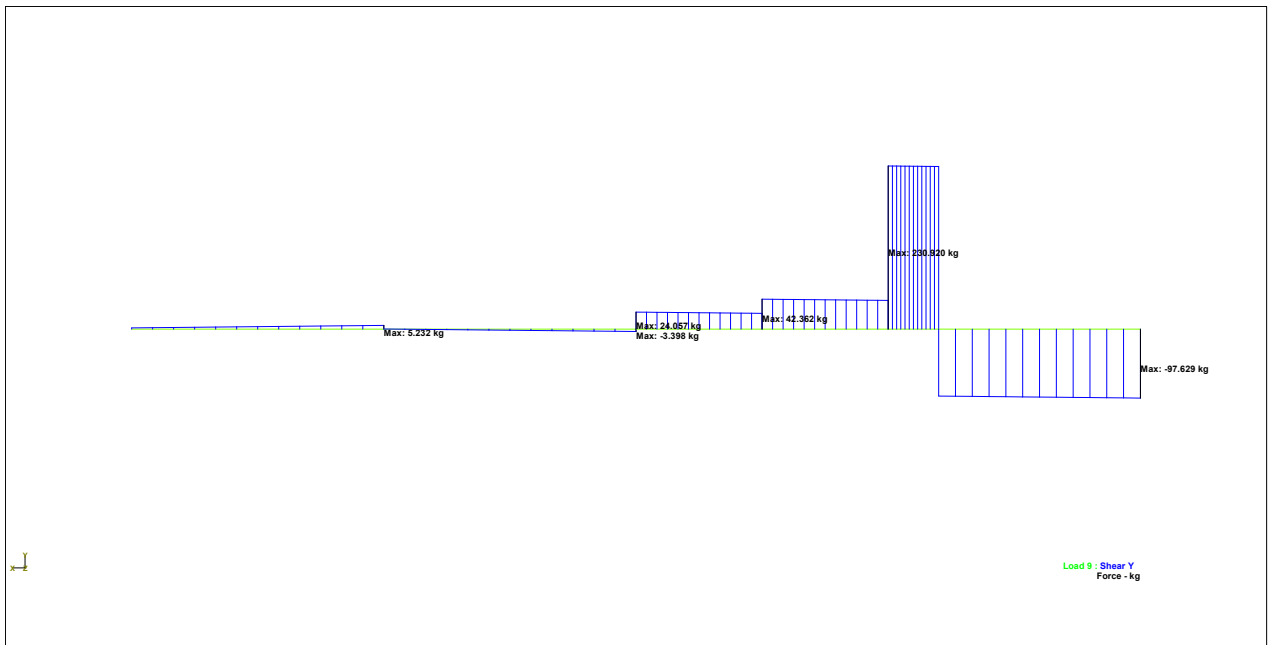


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Max shear at lifting frame DL+LL2+SWx : 232.270 kg

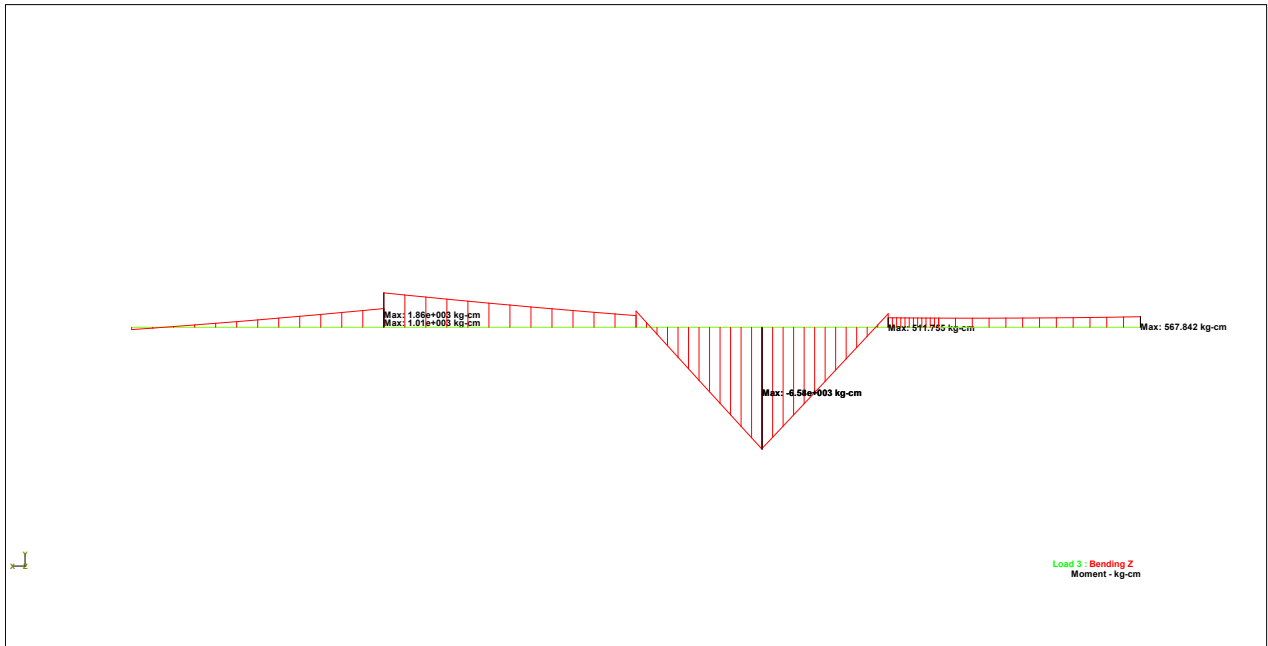


Max shear at lifting frame DL+LL2+SWz : 230.920 kg

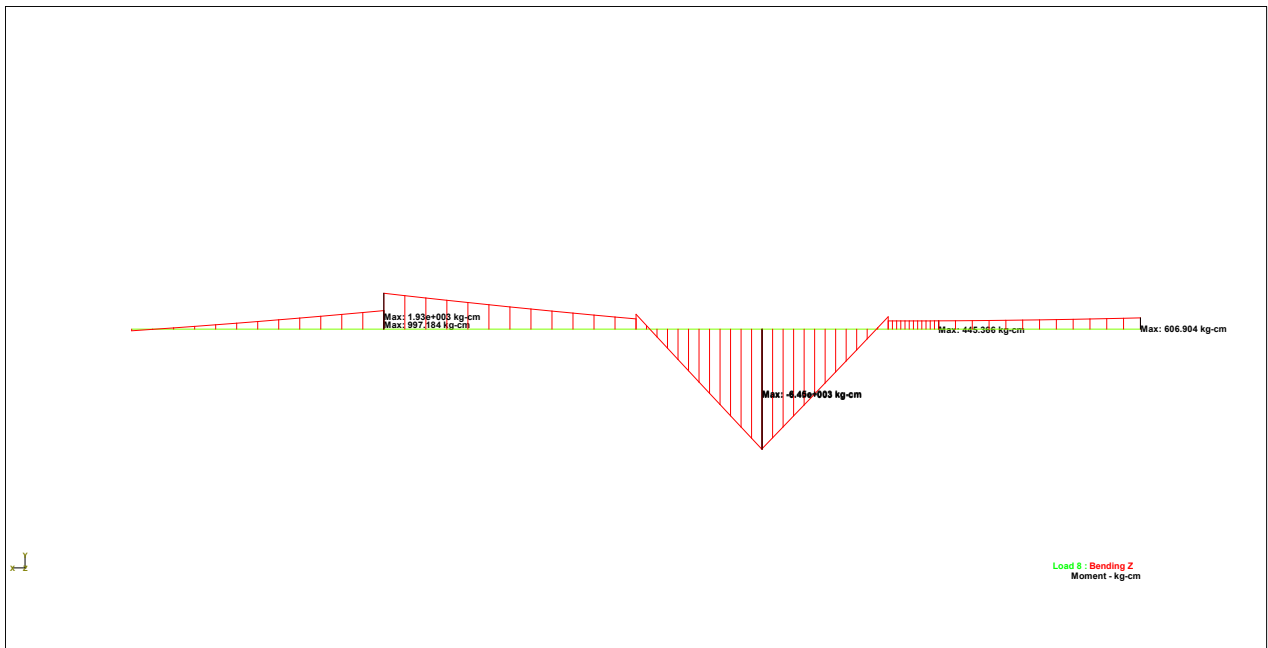


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Max moment at lifting frame DL+LL1+SWx : 6,580 kg

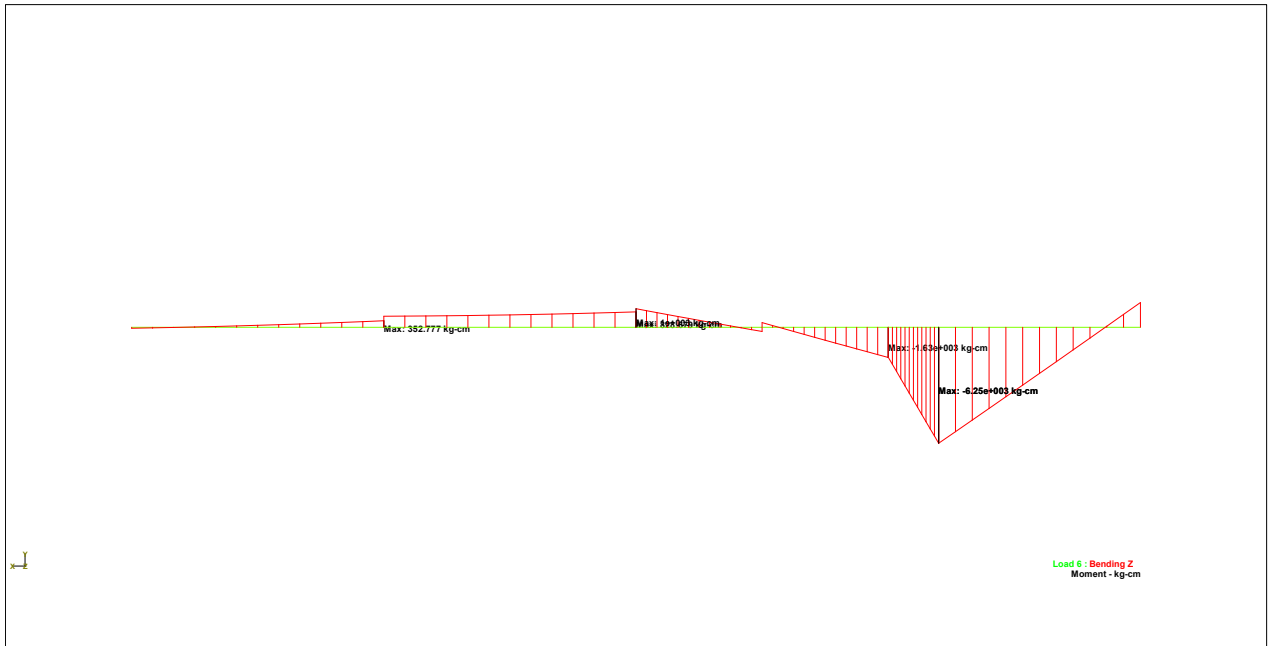


Max shear at lifting frame DL+LL1+SWz : 6,450 kg

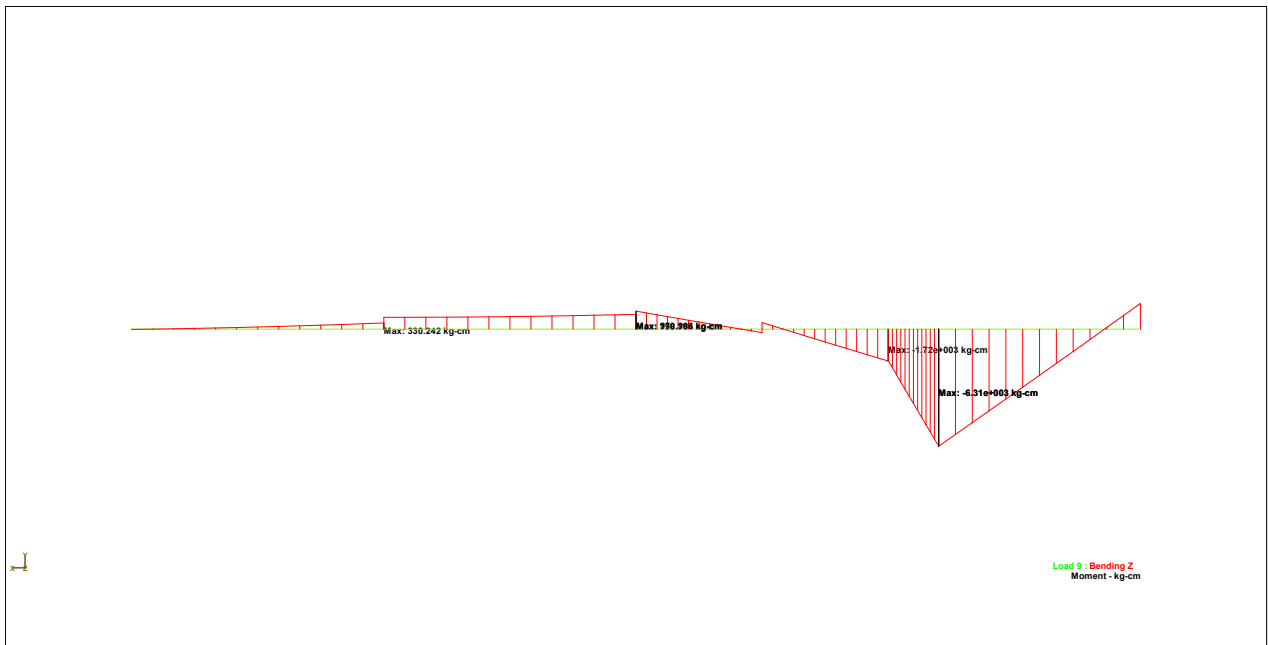


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Max shear at lifting frame DL+LL2+SWx : 6,250 kg



Max shear at lifting frame DL+LL2+SWz : 6,310 kg



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Job Title Scaffolding for lifting 500 kg

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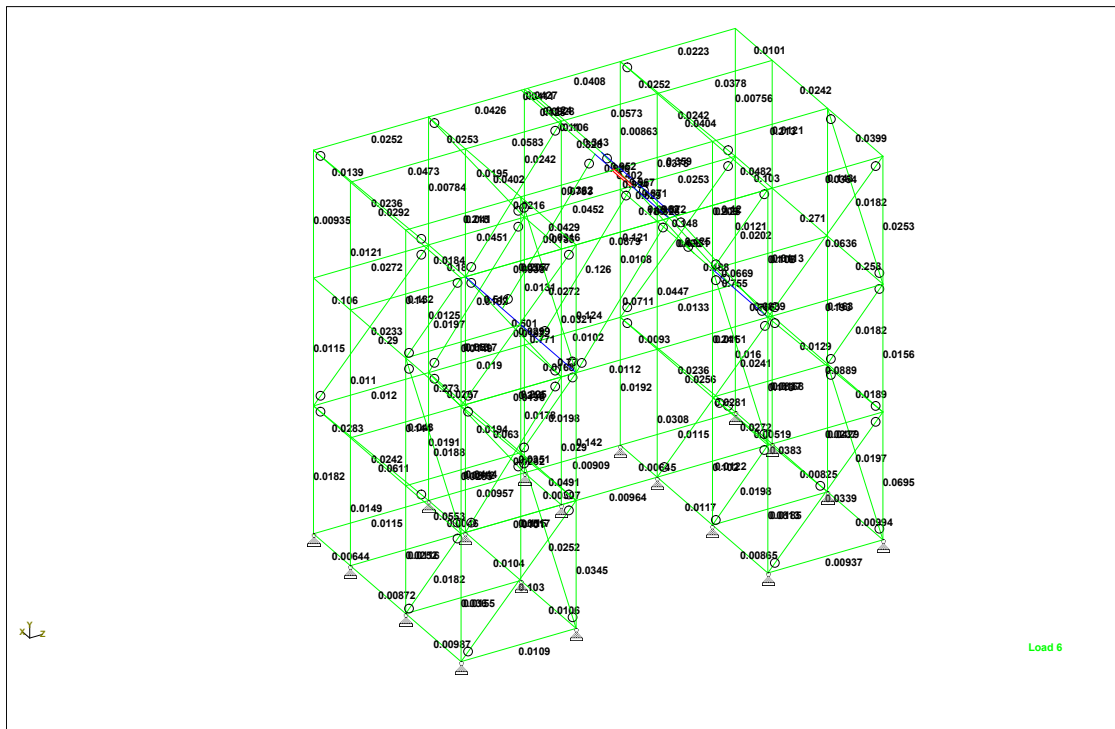
Date 23-Jul-26

Chd

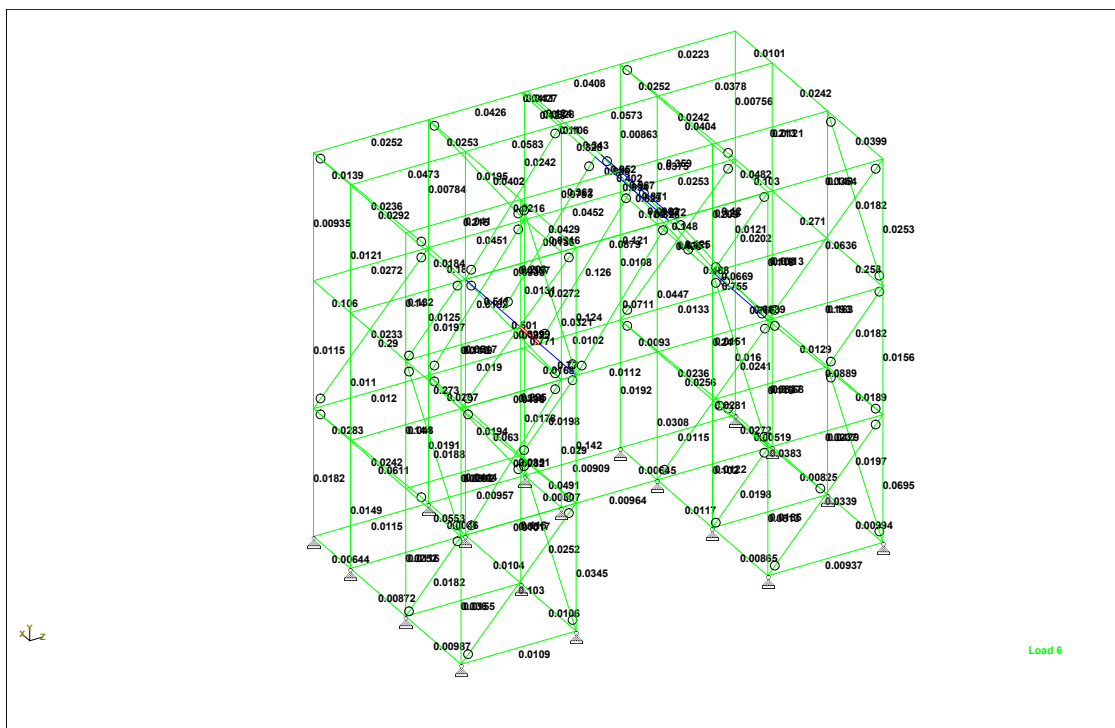
Client

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Max ratio at lifting fram : 0.994



Max ratio at structure scaffolding : 0.771

Safety factor of structure scaffolding (fs) = 1.67 / Ratio
= 1.67 / 0.771
= 2.17 > 2 ok

Design Steel Plank

No. :Steel plank of a transom span	=	7 Pcl.
L :Maximum span length	=	120.00 cm.
DL :Dead Load	=	0.0025 kg/cm ²
LL :Live Load	=	0.0150 kg/cm ²
Load apply to steel plank (DL+LL)	=	0.0175 kg/cm ²

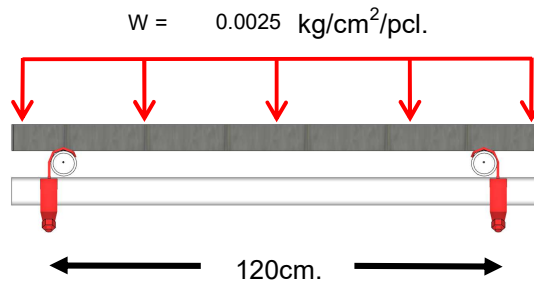
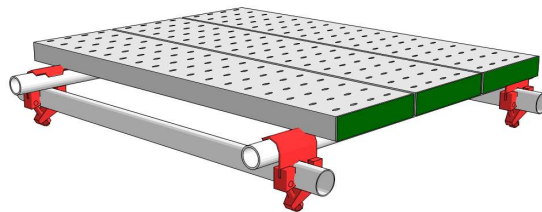
Checking Permissible Load

Maximum Transom span lengt 120.00 cm. Permissible Load = 0.018 kg/cm²
Load apply to each steel plank (DL+LL /No.Steel Plank) = 0.0025 kg/cm² < 0.018 kg/cm² ..OK

Checking deflection

$$\Delta_{At} : \text{Autual deflection} = \frac{5wL^4}{384EI} = 0.011 \text{ cm.}$$

$$\Delta_{AL} : \text{Allowable deflection} = 0.600 \text{ cm.} \quad \Delta_{At} \text{ ..OK}$$



Design Compression Stress Verification

Unbraced length = 200.00 cm.

Max Axial force in column = 344.76 kg.

Overall Maximum Total Load (Max) on scaffold structure = 345.00 kg.

Factor of Safety (F.s) = 2 factor

Maximum total design loads per point (P_u) on scaffold structure = 690.00 kg.

Checking the buckling along the critical axis (x-y)

According to the condition of section and support which is pinned - pinned at the end of the column $K_x = K_y = 1.0$

$$\frac{KL}{r} = \frac{1.0(200)}{1.60} = 124.98 \quad \text{...OK} \quad \text{Not more than 200}$$

$$\lambda_c = \frac{KL}{r\pi} \sqrt{\frac{F_y}{E}} = \frac{1.0(200)}{1.60\pi} \sqrt{\frac{2,450}{E}} = 1.36 \quad \text{Inelastic}$$

Inelastic buckling stress calculation

$$F_{cr} = 0.658^{\lambda_c^2} F_y = 1,131.15 \text{ Ksc.}$$

The nominal load of the section calculation

$$P_n = \frac{F_{cr} A_g}{\Omega} = \frac{1,131.15 \times 4.53}{1.67} = 3,068.34 \text{ Kg.} > P_u = 690.00 \text{ Kg.} \quad \text{...OK}$$

Utilization ratio

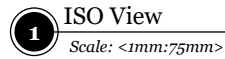
$$\frac{P_u}{P_n} = 690.00 / 3,068.34 = 0.22 \quad \text{...OK} \quad \text{Not more than 1}$$

Checking Base Plate

BS EN 74-3 2007 130x130x5 mm. Allowable bearing Stress 3,059.15 Kg.

Maximum load on scaffold per point 690.00 kg. < Allowable bearing Stress 3,059.15 kg. ...OK

Maximum load for lifting not over 500 kg.



LIFTING DETAILS

DIAGONAL BRACING DETAILS

ติดตั้งคำขึ้นชื่อกับเสาหลักด้วยแคลมป์หมุน

- Where a temporary structure erected by impact loads on a permanent structures must ensure that the permanent structure is of adequate strength resist such forces.
- Designs are carried out in accordance with temporary work code BS EN 12811 Together with EN74,EN39
- Height to base ratio refers to scaffold structure which are centrally loaded and with loads applied vertically
- Brace all four sides as shown. Do not chase bracing, braces to be fitted from form bottom left hand corner to top right hand corner on all side as shown above
- All fittings to be load bearing, on half laps to be used with in the structure.
- The client is to ensure that the existing structure is capable of with standing the applied load from scaffold.

Scale: <1mm:125mm>

4 Top View
Scale: 1mm

Scale: <1mm:100mm>

Scale: <1mm:125mm>



- รับน้ำหนัก (P) ไม่เกิน 500 kg.
- ต้องมีค้ำยัน/เสริมเสาทั้งสองข้าง ขับเคลื่อนโดยแกลบปีเตอร์ Double Coupler เท่านั้น
- ใช้แกลบปีเตอร์ Double couplers ในการขับเคลื่อนเท่านั้น ยกเว้นเฉพาะ bracing
- ความสูงของนั่งร้านต้องไม่เกิน 3.5 เท่าของความกว้างฐาน
- Chain Block และ Lifting gear ต้องอยู่ในตำแหน่งยกตามที่แสดงในแบบเท่านั้น

	<u>PROJECT OWNER</u>	<u>PROJECT NAME</u>	<u>DRAWING TITLE</u> Drawing scaffolding for lifting STD 4x7x6 m3 --> 500 kg	<u>SCAFFOLDING ENGINEER</u>	<u>CHECKED BY</u>	<u>DATE</u> 24-07-26
						<u>PAGE NO.</u>



Conveyor In & out feel spiral.

Handwritten notes in Thai and English, including dates and signatures, are present over the license card.

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