ASP - EQUIPMENT PLATFORM DESIGN CHECK

For
ASP1014 BTS Support Platform
Flagship Hotel
Galveston, Texas

Prepared For:

ADVANCED SUPPORT PRODUCTS, INC
Tomball, TX

By:
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Eiffel Job# 01s002
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ASP1014 BTS Equipment Platform

PROJECT DESCRIPTION: Calculation of loads for a BTS equipment platform by ASP, part # 1014, to be located in Flagship Hotel, Galveston, TX. Loads are calculated as per **UBC -1997** and applied in a finite element model of the structure. **Roof analysis is not in the scope of these calculations.**

Applicable codes: UBC-1997

INPUT DATA

-Structure Data- (data provided by ASP)

Client specified wind speed	$V := 140 \cdot mph$
Height of roof	$H_{rf} := 70 \cdot ft$
Building exposure	= "D"

Cabinet Dimensions- (data provided by ASP)

Cabinet height	$H_{cab} := 5 \cdot ft$	(approx)
Cabinet width -total	$W_{cab} := 14 \cdot ft$	(5 cab)
Cabinet depth	$D_{cab} := 3 \cdot ft$	(support point)

-UBC factors-

$C_e := 1.77$	Combined height, exposure & gust factor coefficient	(UBC Table 16-G)
$C_q := 1.4$	Pressure Coefficient	(UBC Table 16-H)
$q_s := 50.2 \cdot psf$	Wind stagnation pressure	(UBC Table 16-F)
$I_w := 1.0$	Importance factor	(UBC Table 16-K)

CALCULATIONS

-Wind pressure-

$P_{ubc} := C_e \cdot C_q \cdot q_s \cdot I_w$ $P_{ubc} = 124.4\,psf$ (UBC 20-1)

-Wind load on the cabinets-

Calculate the effect of wind loading from the cabinet to the platform

Front $F_f := H_{cab} \cdot W_{cab} \cdot P_{ubc}$ $F_f = 8.71\,kips$

Linear shear load $S_{clin} := \frac{F_f}{W_{cab}}$ $S_{clin} = 621.98\,plf$

Moment from wind load $M_{cab} := F_f \cdot \frac{H_{cab}}{2}$ $M_{cab} = 21.77\,ft\_kip$

Couple from moment at base $C_{base} := \frac{M_{cab}}{D_{cab}}$ $C_{base} = 7.26\,kip$ (up & down)

linear couple $P_c := \frac{C_{base}}{W_{cab}}$ $P_c = 518.32\,plf$

-***Weight of cabinets***-

(6) cabinets with weights of: (1) BBC1 - 882 lbs, (1) BTS - 767.2 lbs (3) EXT - 718.7 lbs & (1) PPC - 150 lbs will be on the platform.

-***Grating weight***-

Grating (1"x3/16") $UW_{gr} := 7.6 \cdot psf$

Loading on the runners

Spacing $S_{out} := 2.33 \cdot ft$

$WT_{gr1} := UW_{gr} \cdot S_{out}$ $WT_{gr1} = 17.71\,plf$

-***Live Load***-

$L_L := 30 \cdot psf$ (unoccupied structure - 30 psf)

Loading on the runners

Spacing $S_{out} := 2.33 \cdot ft$

$WT_{Live} := L_L \cdot S_{out}$ $WT_{Live} = 69.9\,plf$

-***Snow Load***- (ASCE7-98 Fig 7-1)

$S_L := 0 \cdot psf$

Loading on the runners

Spacing $S_{out} := 2.33 \cdot ft$

$WT_{snw} := S_L \cdot S_{out}$ $WT_{snw} = 0\,plf$

The above calculated loads are input in the finite element model. Refer to FEM printout for results.

From FEM output

Max. deflection $\Delta_{max} := 0.048 \cdot in$

Max member stress ratio $\alpha_{max} := 0.981$ (TUBULAR STUB LEG)

From the results of the calculations, the ASP platform is adequate to support the proposed equipment for a wind speed of 140 mph. The scope of this calculation is limited to the structural integrity of the steel frame of the ASP platform and does not include the load carrying capacity of the rooftop of the building the platform is to be located. Eiffel Consulting Group recommends that a separate structural analysis to be done to confirm the load carrying capacity of the rooftop.

Job Information

	Engineer	Checked	Approved
Name:	JMG	RS	RS
Date:	28-Aug-01		

Comments

Platform check, Flagship Hotel, Galveston, TX -140MPH.

Structure Type	SPACE FRAME

Number of Nodes	56	Highest Node	56
Number of Elements	61	Highest Beam	61

Number of Basic Load Cases	3
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
Combination	4	DL
Combination	5	DL+LL
Combination	6	DL + WL
Combination	7	DL + 0.75(LL+WL)

Basic Load Cases

Number	Name
1	DL - DEAD LOAD
2	LL- LIVE LOAD
3	WL- WIND LOAD ON CABINETS

Combination Load Cases

Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
4	DL	1	DL - DEAD LOAD	1.00
5	DL+LL	1	DL - DEAD LOAD	1.00
		2	LL- LIVE LOAD	1.00
6	DL + WL	1	DL - DEAD LOAD	1.00
		3	WL- WIND LOAD ON CABINETS	1.00
7	DL + 0.75(LL+WL)	1	DL - DEAD LOAD	1.00
		2	LL- LIVE LOAD	0.75
		3	WL- WIND LOAD ON CABINETS	0.75

Node Displacement Summary

	Node	L/C	X (in)	Y (in)	Z (in)	Resultant (in)	rX (rad)	rY (rad)	rZ (rad)
Max X	1	6:DL + WL	**0.004**	-0.000	-0.036	0.036	-0.00141	-0.00002	-0.00032
Min X	4	6:DL + WL	**-0.005**	0.000	-0.036	0.036	-0.00167	-0.00001	0.00035
Max Y	3	6:DL + WL	-0.000	**0.001**	-0.036	0.036	-0.00041	-0.00029	0.00006
Min Y	24	6:DL + WL	-0.000	**-0.001**	-0.035	0.035	-0.00044	0.00024	0.00007
Max Z	49	5:DL+LL	-0.001	-0.000	**0.000**	0.001	0.00028	0.00004	0.00010
Min Z	13	6:DL + WL	-0.000	0.001	**-0.043**	0.043	-0.00039	0.00012	-0.00004
Max rX	1	5:DL+LL	0.000	-0.000	0.000	0.000	**0.00045**	-0.00001	-0.00002
Min rX	34	6:DL + WL	0.000	0.000	0.000	0.000	**-0.00496**	0.00012	0.00004
Max rY	6	6:DL + WL	-0.000	-0.000	-0.025	0.025	-0.00011	**0.00029**	-0.00030
Min rY	50	6:DL + WL	-0.000	-0.000	-0.026	0.026	-0.00042	**-0.00037**	0.00058
Max rZ	50	6:DL + WL	-0.000	-0.000	-0.026	0.026	-0.00042	-0.00037	**0.00058**
Min rZ	43	6:DL + WL	0.000	0.000	0.000	0.000	-0.00365	-0.00002	**-0.00036**
Max Rst	16	6:DL + WL	-0.000	-0.001	-0.043	**0.043**	-0.00045	0.00012	-0.00004

Beam Combined Axial and Bending Stresses Summary

			Max Comp			Max Tens		
Beam	L/C	Length (ft)	Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
1	4:DL	3.500	1.057	3.500	4	-1.000	3.500	2
	5:DL+LL	3.500	2.925	3.500	3	-2.775	3.500	1
	6:DL + WL	3.500	5.849	0.000	3	-5.299	0.000	1
	7:DL + 0.75(LL	3.500	5.285	0.000	3	-4.789	0.000	1
2	4:DL	3.000	0.230	0.000	2	-0.219	0.000	3
	5:DL+LL	3.000	0.661	0.000	2	-0.853	0.000	1
	6:DL + WL	3.000	3.390	3.000	1	-3.608	0.000	1
	7:DL + 0.75(LL	3.000	2.043	3.000	1	-3.240	0.000	1
3	4:DL	3.500	0.476	0.000	4	-0.442	0.000	2
	5:DL+LL	3.500	2.342	0.000	4	-2.215	0.000	2
	6:DL + WL	3.500	4.433	3.500	1	-4.893	3.500	3
	7:DL + 0.75(LL	3.500	4.547	0.000	4	-4.813	0.000	2
4	4:DL	3.500	0.357	3.500	4	-0.339	3.500	2
	5:DL+LL	3.500	1.275	3.500	4	-1.210	3.500	2
	6:DL + WL	3.500	3.685	0.000	3	-3.338	0.000	1
	7:DL + 0.75(LL	3.500	3.185	0.000	3	-2.886	0.000	1
5	4:DL	3.000	0.135	0.000	2	-0.198	3.000	1
	5:DL+LL	3.000	0.338	0.000	2	-0.536	3.000	1
	6:DL + WL	3.000	2.712	0.000	2	-2.718	0.000	3
	7:DL + 0.75(LL	3.000	2.220	0.000	2	-2.211	0.000	3
6	4:DL	3.500	0.293	0.000	4	-0.278	0.000	2
	5:DL+LL	3.500	1.221	0.000	3	-1.158	0.000	1
	6:DL + WL	3.500	3.068	3.500	1	-3.386	3.500	3
	7:DL + 0.75(LL	3.500	2.588	0.000	3	-2.788	0.000	1
7	4:DL	3.500	0.507	0.000	3	-0.477	0.000	1
	5:DL+LL	3.500	2.383	0.000	3	-2.259	0.000	1
	6:DL + WL	3.500	5.134	3.500	1	-5.667	3.500	3
	7:DL + 0.75(LL	3.500	4.661	0.000	4	-4.982	0.000	2

Beam Combined Axial and Bending Stresses Summary Cont...

			Max Comp			Max Tens		
Beam	L/C	Length (ft)	Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
8	4:DL	3.500	0.507	3.500	3	-0.477	3.500	1
	5:DL+LL	3.500	2.386	3.500	3	-2.263	3.500	1
	6:DL + WL	3.500	6.309	0.000	3	-5.716	0.000	1
	7:DL + 0.75(LL	3.500	5.558	0.000	3	-5.036	0.000	1
9	4:DL	3.000	0.136	3.000	2	-0.147	0.000	1
	5:DL+LL	3.000	0.554	3.000	2	-0.800	0.000	1
	6:DL + WL	3.000	2.729	3.000	1	-2.969	0.000	1
	7:DL + 0.75(LL	3.000	1.802	0.000	2	-2.753	0.000	1
10	4:DL	3.500	0.507	0.000	4	-0.477	0.000	2
	5:DL+LL	3.500	2.383	0.000	4	-2.259	0.000	2
	6:DL + WL	3.500	5.228	3.500	1	-5.770	3.500	3
	7:DL + 0.75(LL	3.500	4.603	0.000	3	-4.932	0.000	1
11	4:DL	3.500	0.517	3.500	4	-0.487	3.500	2
	5:DL+LL	3.500	2.397	3.500	4	-2.273	3.500	2
	6:DL + WL	3.500	6.409	0.000	3	-5.806	0.000	1
	7:DL + 0.75(LL	3.500	5.633	0.000	3	-5.104	0.000	1
12	4:DL	3.500	0.498	0.000	4	-0.467	0.000	2
	5:DL+LL	3.500	2.373	0.000	4	-2.248	0.000	2
	6:DL + WL	3.500	4.895	3.500	1	-5.403	3.500	3
	7:DL + 0.75(LL	3.500	4.533	0.000	3	-4.836	0.000	1
13	4:DL	3.500	0.516	3.500	4	-0.487	3.500	2
	5:DL+LL	3.500	2.393	3.500	4	-2.270	3.500	2
	6:DL + WL	3.500	6.044	0.000	3	-5.476	0.000	1
	7:DL + 0.75(LL	3.500	5.357	0.000	3	-4.853	0.000	1
14	4:DL	3.500	0.491	0.000	4	-0.459	0.000	2
	5:DL+LL	3.500	2.369	0.000	4	-2.243	0.000	2
	6:DL + WL	3.500	4.246	3.500	1	-4.687	3.500	3
	7:DL + 0.75(LL	3.500	4.422	0.000	3	-4.674	0.000	1
15	4:DL	3.500	0.518	3.500	4	-0.490	3.500	2
	5:DL+LL	3.500	2.398	3.500	4	-2.276	3.500	2
	6:DL + WL	3.500	5.319	0.000	3	-4.819	0.000	1
	7:DL + 0.75(LL	3.500	4.811	0.000	3	-4.359	0.000	1
16	4:DL	3.000	0.138	3.000	2	-0.165	0.000	1
	5:DL+LL	3.000	0.563	3.000	2	-0.814	0.000	1
	6:DL + WL	3.000	3.052	0.000	1	-3.148	3.000	1
	7:DL + 0.75(LL	3.000	1.762	0.000	1	-2.861	3.000	1
17	4:DL	3.000	0.123	3.000	2	-0.122	0.000	1
	5:DL+LL	3.000	0.552	3.000	2	-0.767	0.000	1
	6:DL + WL	3.000	2.547	0.000	1	-2.777	3.000	1
	7:DL + 0.75(LL	3.000	1.784	3.000	2	-2.588	3.000	1
18	4:DL	3.000	0.116	3.000	2	-0.117	0.000	1
	5:DL+LL	3.000	0.535	3.000	2	-0.771	0.000	1
	6:DL + WL	3.000	2.396	0.000	1	-2.614	3.000	1
	7:DL + 0.75(LL	3.000	2.030	3.000	2	-2.478	3.000	1
19	4:DL	2.330	0.459	2.330	2	-0.830	2.330	1
	5:DL+LL	2.330	0.482	2.330	2	-0.827	0.000	1

Beam Combined Axial and Bending Stresses Summary Cont...

Beam	L/C	Length (ft)	Max Comp Stress (ksi)	Max Comp d (ft)	Max Comp Corner	Max Tens Stress (ksi)	Max Tens d (ft)	Max Tens Corner
	6:DL + WL	2.330	2.372	1.165	1	-4.883	0.000	1
	7:DL + 0.75(LL	2.330	1.866	1.165	1	-3.900	0.000	1
20	4:DL	2.330	0.421	1.165	1	-0.754	0.000	1
	5:DL+LL	2.330	0.449	1.165	1	-0.727	0.000	1
	6:DL + WL	2.330	2.812	1.165	1	-4.415	2.330	1
	7:DL + 0.75(LL	2.330	2.235	1.165	1	-3.475	2.330	1
21	4:DL	2.330	0.409	0.000	2	-0.791	2.330	1
	5:DL+LL	2.330	0.436	0.000	2	-0.854	2.330	1
	6:DL + WL	2.330	2.357	1.165	1	-5.283	2.330	1
	7:DL + 0.75(LL	2.330	1.859	1.165	1	-4.207	2.330	1
22	4:DL	2.330	0.457	0.000	2	-0.927	0.000	1
	5:DL+LL	2.330	0.485	0.000	2	-0.899	2.330	1
	6:DL + WL	2.330	2.371	1.165	1	-5.098	0.000	1
	7:DL + 0.75(LL	2.330	1.894	1.165	1	-4.003	0.000	1
23	4:DL	2.330	0.566	0.971	1	-1.037	2.330	1
	5:DL+LL	2.330	0.540	0.971	1	-1.057	2.330	1
	6:DL + WL	2.330	2.858	1.165	1	-4.653	2.330	1
	7:DL + 0.75(LL	2.330	2.263	1.165	1	-3.764	2.330	1
24	4:DL	2.330	0.416	2.330	2	-0.912	2.330	1
	5:DL+LL	2.330	0.437	0.000	2	-0.952	2.330	1
	6:DL + WL	2.330	1.524	2.330	3	-1.427	2.330	2
	7:DL + 0.75(LL	2.330	1.065	2.330	3	-0.988	2.330	2
25	4:DL	2.330	0.393	1.165	1	-0.780	0.000	1
	5:DL+LL	2.330	0.364	1.165	1	-0.806	0.000	1
	6:DL + WL	2.330	1.242	1.165	2	-1.184	1.165	3
	7:DL + 0.75(LL	2.330	0.874	1.165	2	-0.827	1.165	3
26	4:DL	2.330	0.389	1.165	1	-0.828	0.000	1
	5:DL+LL	2.330	0.422	2.330	2	-0.884	0.000	1
	6:DL + WL	2.330	1.586	2.330	3	-1.468	2.330	2
	7:DL + 0.75(LL	2.330	1.073	2.330	3	-0.979	2.330	2
27	4:DL	2.330	0.440	1.165	1	-0.999	0.000	1
	5:DL+LL	2.330	0.437	1.165	1	-1.059	0.000	1
	6:DL + WL	2.330	1.407	2.330	3	-1.248	2.330	2
	7:DL + 0.75(LL	2.330	0.939	2.330	3	-0.814	2.330	2
28	4:DL	2.330	0.618	0.971	1	-1.009	2.330	1
	5:DL+LL	2.330	0.646	0.971	1	-0.972	2.330	1
	6:DL + WL	2.330	1.490	0.000	3	-1.949	0.000	1
	7:DL + 0.75(LL	2.330	1.101	0.000	3	-1.514	0.000	1
29	4:DL	1.000	0.953	0.000	2	-0.530	0.000	4
	5:DL+LL	1.000	1.316	0.000	2	-0.561	0.000	4
	6:DL + WL	1.000	12.157	0.000	3	-13.430	0.000	1
	7:DL + 0.75(LL	1.000	9.296	0.000	3	-9.896	0.000	1
30	4:DL	1.000	0.283	0.000	1	-0.229	0.000	3
	5:DL+LL	1.000	1.112	0.000	4	-0.904	0.000	2
	6:DL + WL	1.000	5.141	0.000	3	-5.279	0.000	1
	7:DL + 0.75(LL	1.000	3.295	0.000	3	-3.269	0.000	1

Beam Combined Axial and Bending Stresses Summary Cont...

Beam	L/C	Length (ft)	Max Comp Stress (ksi)	Max Comp d (ft)	Max Comp Corner	Max Tens Stress (ksi)	Max Tens d (ft)	Max Tens Corner
31	4:DL	1.000	0.570	0.000	1	-0.474	0.000	3
	5:DL+LL	1.000	2.227	0.000	1	-1.822	0.000	3
	6:DL + WL	1.000	7.126	0.000	3	-7.314	0.000	1
	7:DL + 0.75(LL	1.000	4.215	0.000	3	-4.100	0.000	1
32	4:DL	1.000	0.545	0.000	1	-0.450	0.000	3
	5:DL+LL	1.000	2.200	0.000	1	-1.796	0.000	3
	6:DL + WL	1.000	8.119	0.000	3	-8.342	0.000	1
	7:DL + 0.75(LL	1.000	4.967	0.000	3	-4.878	0.000	1
33	4:DL	1.000	0.533	0.000	1	-0.438	0.000	3
	5:DL+LL	1.000	2.192	0.000	1	-1.788	0.000	3
	6:DL + WL	1.000	8.630	0.000	3	-8.872	0.000	1
	7:DL + 0.75(LL	1.000	5.350	0.000	3	-5.277	0.000	1
34	4:DL	1.000	0.530	0.000	4	-0.436	0.000	2
	5:DL+LL	1.000	2.190	0.000	4	-1.786	0.000	2
	6:DL + WL	1.000	8.517	0.000	2	-8.755	0.000	4
	7:DL + 0.75(LL	1.000	5.266	0.000	2	-5.189	0.000	4
35	4:DL	1.000	0.586	0.000	1	-0.489	0.000	3
	5:DL+LL	1.000	2.235	0.000	1	-1.830	0.000	3
	6:DL + WL	1.000	7.445	0.000	2	-7.645	0.000	4
	7:DL + 0.75(LL	1.000	4.455	0.000	2	-4.348	0.000	4
36	4:DL	1.000	0.905	0.000	2			
	5:DL+LL	1.000	1.533	0.000	2			
	6:DL + WL	1.000	13.616	0.000	3	-16.220	0.000	1
	7:DL + 0.75(LL	1.000	10.833	0.000	3	-11.979	0.000	1
37	4:DL	1.000	0.765	0.000	2			
	5:DL+LL	1.000	1.428	0.000	2			
	6:DL + WL	1.000	16.311	0.000	2	-18.648	0.000	4
	7:DL + 0.75(LL	1.000	12.922	0.000	2	-13.887	0.000	4
38	4:DL	1.000	0.778	0.000	2			
	5:DL+LL	1.000	1.404	0.000	3			
	6:DL + WL	1.000	17.019	0.000	2	-19.506	0.000	4
	7:DL + 0.75(LL	1.000	13.418	0.000	2	-14.495	0.000	4
39	4:DL	1.000	0.796	0.000	3			
	5:DL+LL	1.000	1.440	0.000	3			
	6:DL + WL	1.000	15.579	0.000	2	-17.914	0.000	4
	7:DL + 0.75(LL	1.000	12.333	0.000	2	-13.277	0.000	4
40	4:DL	1.000	0.890	0.000	3			
	5:DL+LL	1.000	1.544	0.000	3			
	6:DL + WL	1.000	13.158	0.000	2	-15.527	0.000	4
	7:DL + 0.75(LL	1.000	10.529	0.000	2	-11.463	0.000	4
41	4:DL	1.000	0.780	0.000	1	-0.345	0.000	3
	5:DL+LL	1.000	1.100	0.000	1	-0.334	0.000	3
	6:DL + WL	1.000	14.319	0.000	2	-12.271	0.000	4
	7:DL + 0.75(LL	1.000	10.927	0.000	2	-9.034	0.000	4
42	4:DL	1.000	0.927	0.000	1			
	5:DL+LL	1.000	1.587	0.000	1			

Beam Combined Axial and Bending Stresses Summary Cont...

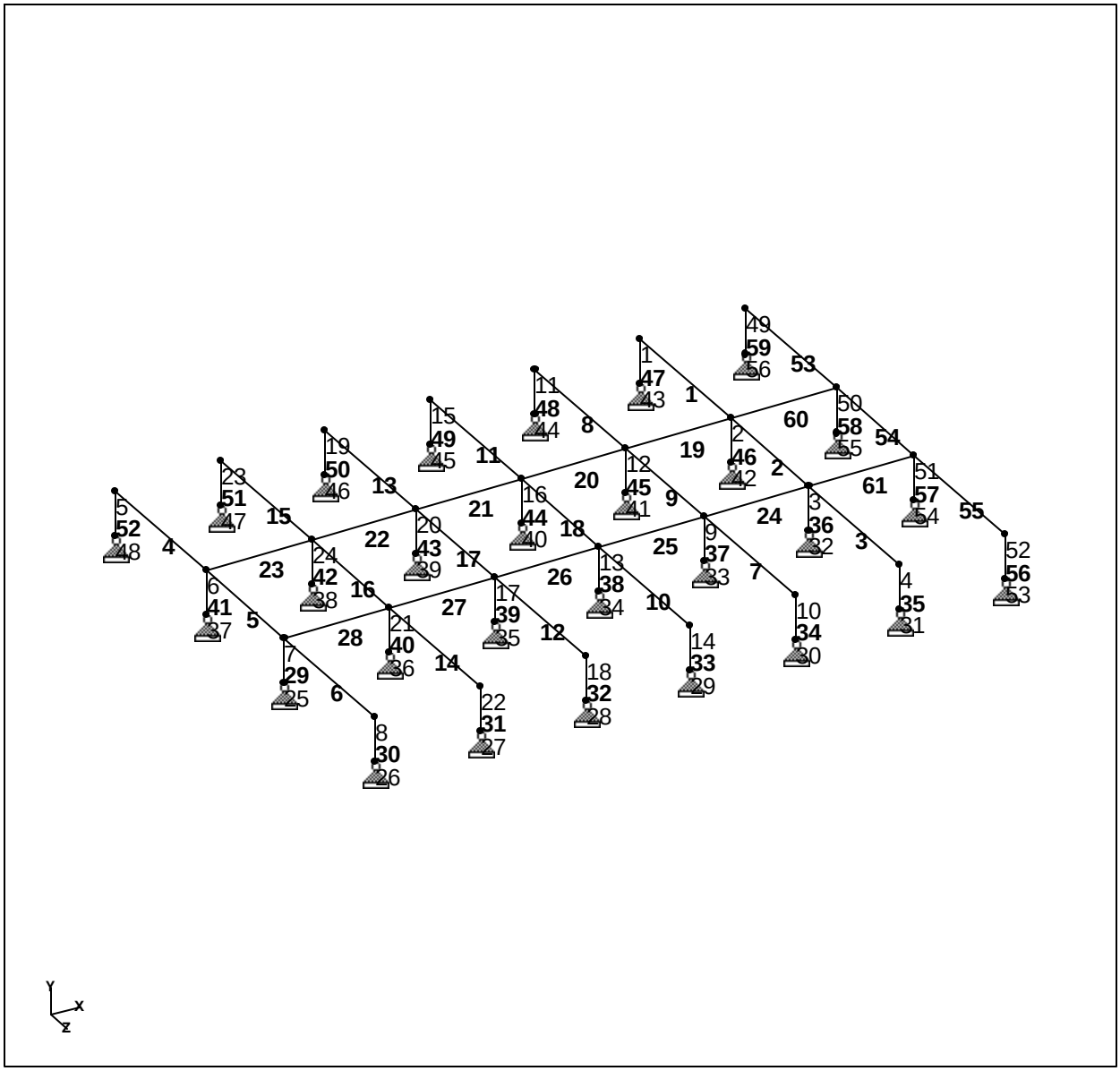
			Max Comp			Max Tens		
Beam	L/C	Length (ft)	Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
	6:DL + WL	1.000	16.708	0.000	3	-11.415	0.000	1
	7:DL + 0.75(LL	1.000	12.648	0.000	3	-7.834	0.000	1
43	4:DL	1.000	0.837	0.000	1			
	5:DL+LL	1.000	1.479	0.000	1			
	6:DL + WL	1.000	18.928	0.000	2	-14.168	0.000	4
	7:DL + 0.75(LL	1.000	14.337	0.000	2	-9.962	0.000	4
44	4:DL	1.000	0.838	0.000	1			
	5:DL+LL	1.000	1.496	0.000	1			
	6:DL + WL	1.000	20.341	0.000	2	-15.540	0.000	4
	7:DL + 0.75(LL	1.000	15.409	0.000	2	-11.021	0.000	4
45	4:DL	1.000	0.810	0.000	1			
	5:DL+LL	1.000	1.423	0.000	1			
	6:DL + WL	1.000	19.584	0.000	3	-14.852	0.000	1
	7:DL + 0.75(LL	1.000	14.810	0.000	3	-10.477	0.000	1
46	4:DL	1.000	1.315	0.000	1			
	5:DL+LL	1.000	1.931	0.000	1			
	6:DL + WL	1.000	17.210	0.000	2	-11.987	0.000	4
	7:DL + 0.75(LL	1.000	13.030	0.000	2	-8.268	0.000	4
47	4:DL	1.000	1.014	0.000	2	-0.824	0.000	4
	5:DL+LL	1.000	2.665	0.000	3	-2.167	0.000	1
	6:DL + WL	1.000	9.211	0.000	3	-8.726	0.000	1
	7:DL + 0.75(LL	1.000	8.402	0.000	3	-7.760	0.000	1
48	4:DL	1.000	0.531	0.000	3	-0.437	0.000	1
	5:DL+LL	1.000	2.191	0.000	3	-1.788	0.000	1
	6:DL + WL	1.000	9.826	0.000	3	-9.399	0.000	1
	7:DL + 0.75(LL	1.000	8.747	0.000	3	-8.172	0.000	1
49	4:DL	1.000	0.534	0.000	2	-0.439	0.000	4
	5:DL+LL	1.000	2.193	0.000	2	-1.790	0.000	4
	6:DL + WL	1.000	9.953	0.000	2	-9.522	0.000	4
	7:DL + 0.75(LL	1.000	8.843	0.000	2	-8.264	0.000	4
50	4:DL	1.000	0.517	0.000	2	-0.423	0.000	4
	5:DL+LL	1.000	2.172	0.000	2	-1.769	0.000	4
	6:DL + WL	1.000	9.416	0.000	2	-9.004	0.000	4
	7:DL + 0.75(LL	1.000	8.433	0.000	2	-7.869	0.000	4
51	4:DL	1.000	0.499	0.000	2	-0.406	0.000	4
	5:DL+LL	1.000	2.160	0.000	2	-1.758	0.000	4
	6:DL + WL	1.000	8.338	0.000	2	-7.962	0.000	4
	7:DL + 0.75(LL	1.000	7.624	0.000	2	-7.087	0.000	4
52	4:DL	1.000	0.339	0.000	2	-0.285	0.000	4
	5:DL+LL	1.000	1.162	0.000	2	-0.953	0.000	4
	6:DL + WL	1.000	5.912	0.000	2	-5.676	0.000	4
	7:DL + 0.75(LL	1.000	5.136	0.000	2	-4.829	0.000	4
53	4:DL	3.500	0.912	3.500	3	-0.869	3.500	1
	5:DL+LL	3.500	1.851	3.500	3	-1.761	3.500	1
	6:DL + WL	3.500	4.232	0.000	3	-3.834	0.000	1
	7:DL + 0.75(LL	3.500	3.662	0.000	4	-3.318	0.000	2

Beam Combined Axial and Bending Stresses Summary Cont...

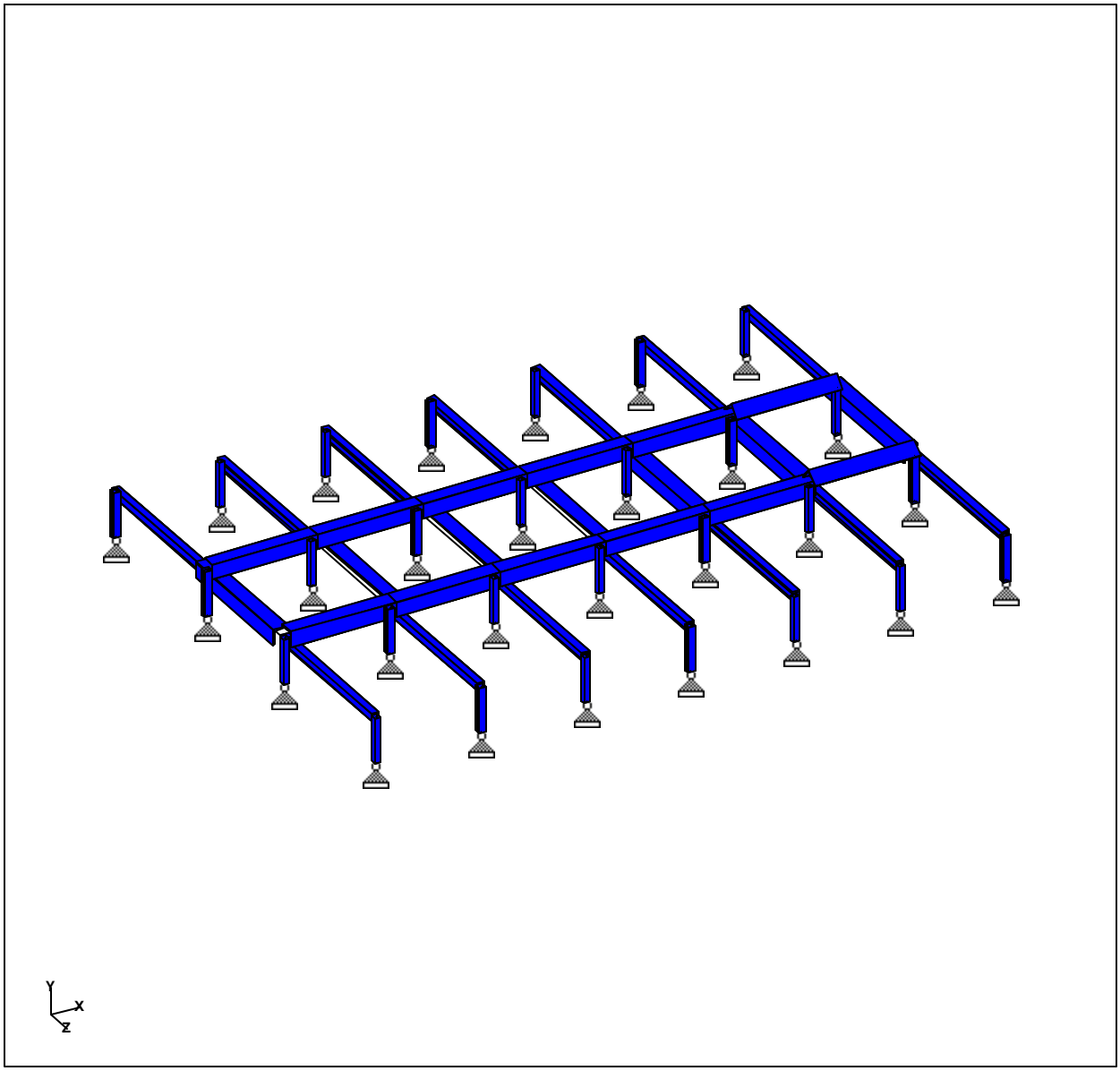
			Max Comp			Max Tens		
Beam	L/C	Length (ft)	Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
54	4:DL	3.000	0.178	0.000	2	-0.184	0.000	1
	5:DL+LL	3.000	0.395	0.000	2	-0.503	0.000	1
	6:DL + WL	3.000	3.578	3.000	1	-3.821	0.000	1
	7:DL + 0.75(LL	3.000	2.435	3.000	1	-3.151	0.000	1
55	4:DL	3.500	0.316	0.000	3	-0.295	0.000	1
	5:DL+LL	3.500	1.255	0.000	3	-1.187	0.000	1
	6:DL + WL	3.500	3.275	0.000	4	-3.609	0.000	2
	7:DL + 0.75(LL	3.500	3.207	0.000	4	-3.416	0.000	2
56	4:DL	1.000	0.385	0.000	4	-0.329	0.000	2
	5:DL+LL	1.000	1.213	0.000	4	-1.002	0.000	2
	6:DL + WL	1.000	5.550	0.000	2	-5.710	0.000	4
	7:DL + 0.75(LL	1.000	3.575	0.000	2	-3.565	0.000	4
57	4:DL	1.000	1.046	0.000	3	-0.532	0.000	1
	5:DL+LL	1.000	1.376	0.000	3	-0.529	0.000	1
	6:DL + WL	1.000	11.388	0.000	2	-12.416	0.000	4
	7:DL + 0.75(LL	1.000	8.642	0.000	2	-9.035	0.000	4
58	4:DL	1.000	1.456	0.000	4	-0.799	0.000	2
	5:DL+LL	1.000	1.783	0.000	4	-0.795	0.000	2
	6:DL + WL	1.000	13.943	0.000	3	-11.767	0.000	1
	7:DL + 0.75(LL	1.000	10.649	0.000	3	-8.604	0.000	1
59	4:DL	1.000	0.793	0.000	3	-0.645	0.000	1
	5:DL+LL	1.000	1.621	0.000	3	-1.318	0.000	1
	6:DL + WL	1.000	6.891	0.000	3	-6.526	0.000	1
	7:DL + 0.75(LL	1.000	5.987	0.000	3	-5.561	0.000	1
60	4:DL	2.330	0.862	1.359	1	-1.343	0.000	1
	5:DL+LL	2.330	0.861	1.359	1	-1.338	0.000	1
	6:DL + WL	2.330	3.499	1.359	1	-5.748	0.000	1
	7:DL + 0.75(LL	2.330	2.839	1.359	1	-4.643	0.000	1
61	4:DL	2.330	0.862	1.359	1	-1.327	0.000	1
	5:DL+LL	2.330	0.865	1.359	1	-1.311	0.000	1
	6:DL + WL	2.330	2.858	0.000	1	-1.829	1.359	1
	7:DL + 0.75(LL	2.330	1.824	0.000	1	-1.154	1.359	1

Reaction Summary

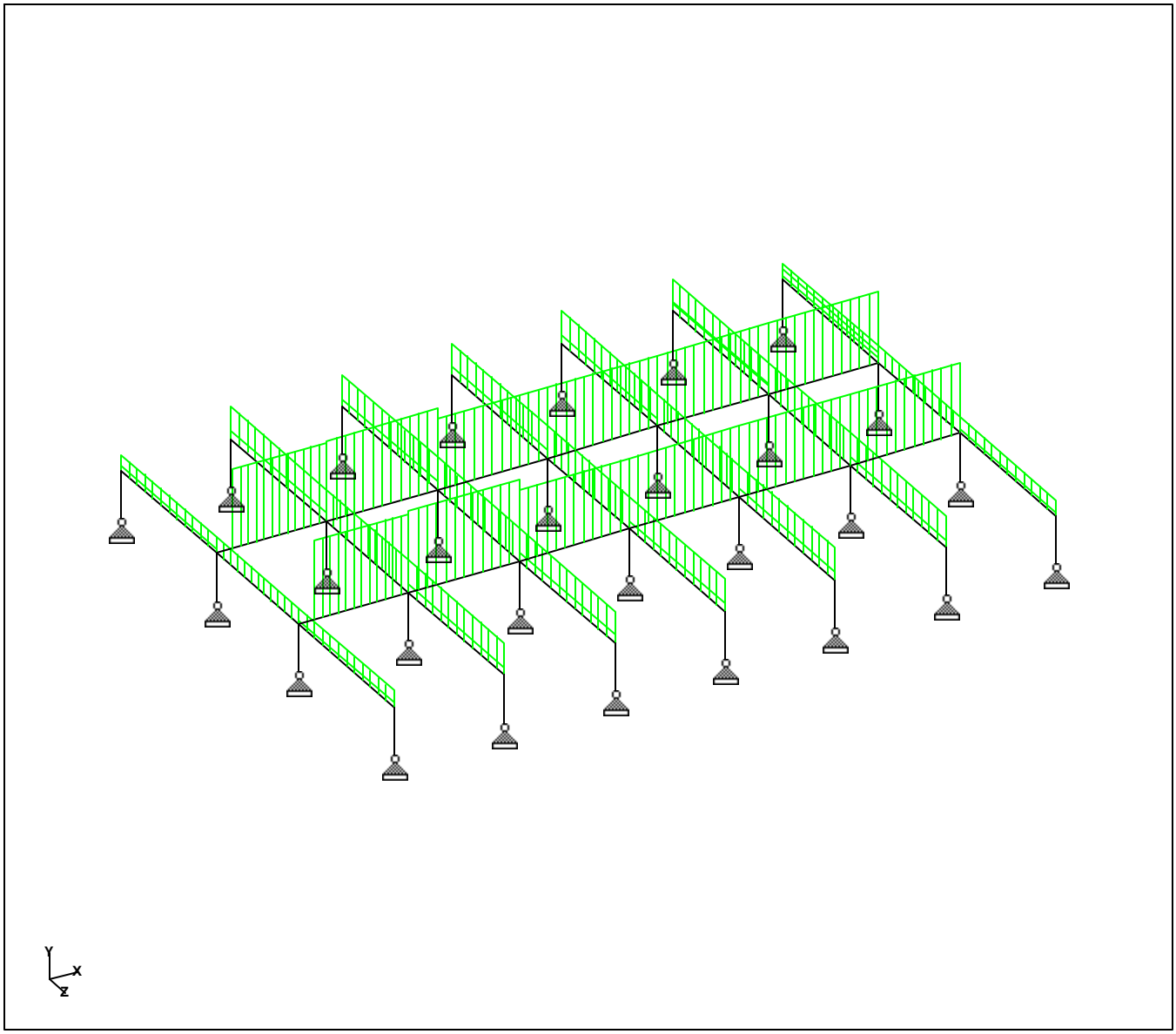
	Node	L/C	Horizontal FX (kip)	Vertical FY (kip)	Horizontal FZ (kip)	Moment MX (kip-ft)	Moment MY (kip-ft)	Moment MZ (kip-ft)
Max FX	37	6:DL + WL	**0.053**	0.740	0.320	0.000	0.000	0.000
Min FX	55	6:DL + WL	**-0.090**	0.786	0.271	0.000	0.000	0.000
Max FY	38	6:DL + WL	-0.006	**1.909**	0.389	0.000	0.000	0.000
Min FY	32	6:DL + WL	-0.006	**-0.936**	0.413	0.000	0.000	0.000
Max FZ	34	6:DL + WL	0.009	-0.893	**0.504**	0.000	0.000	0.000
Min FZ	31	5:DL+LL	0.000	0.149	**-0.057**	0.000	0.000	0.000
Max MX	25	4:DL	0.016	0.155	0.005	**0.000**	0.000	0.000
Min MX	25	4:DL	0.016	0.155	0.005	**0.000**	0.000	0.000
Max MY	25	4:DL	0.016	0.155	0.005	0.000	**0.000**	0.000
Min MY	25	4:DL	0.016	0.155	0.005	0.000	**0.000**	0.000
Max MZ	25	4:DL	0.016	0.155	0.005	0.000	0.000	**0.000**
Min MZ	25	4:DL	0.016	0.155	0.005	0.000	0.000	**0.000**



Whole Structure



3-d



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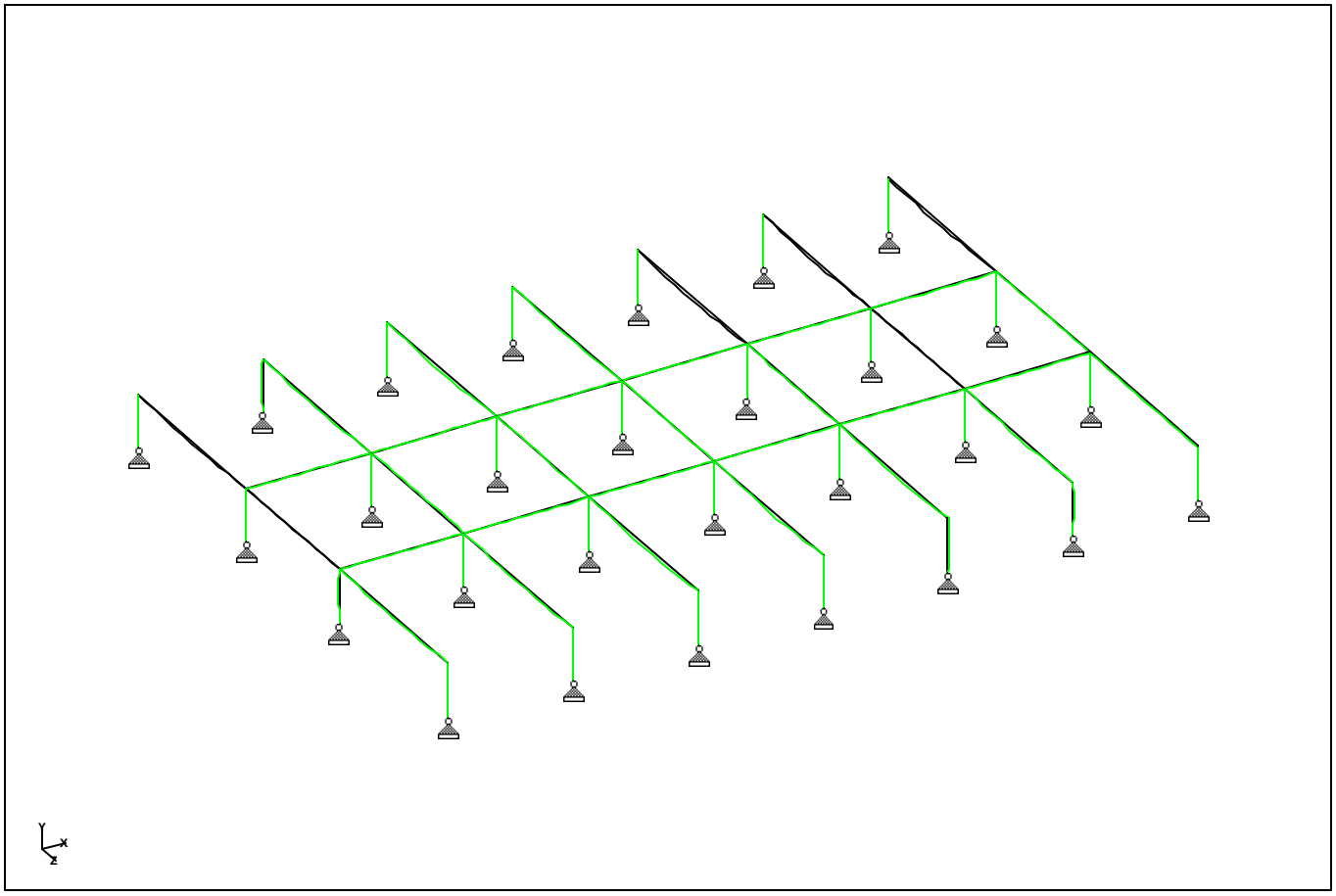
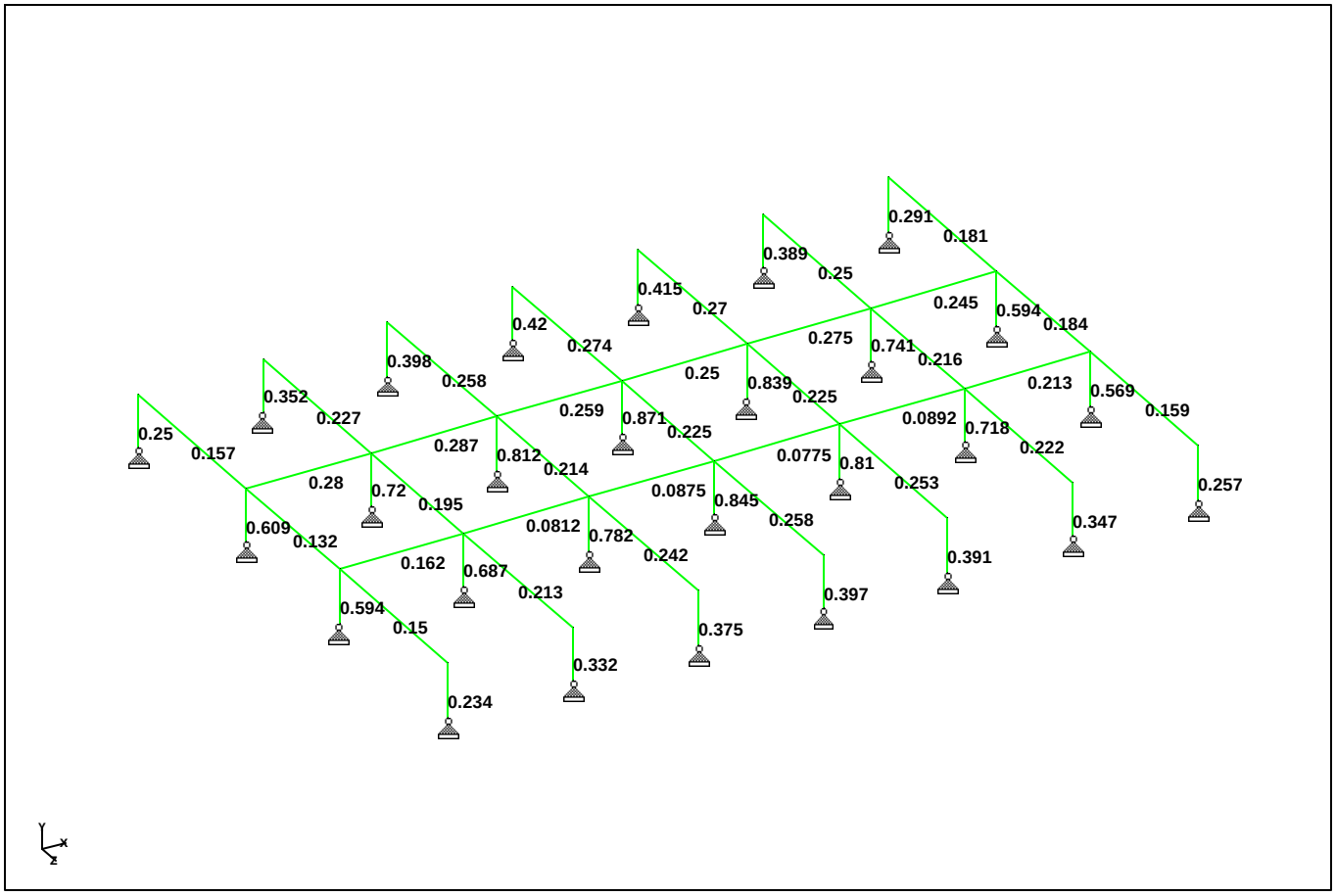


Whole Structure Displacements 0.1in:1ft 5 DL+LL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Memb Stress