

ASP - EQUIPMENT PLATFORM DESIGN CHECK

**LFX-0909-R-0 Platform
Lucent Flexant Equipment
Arizona**

For:

**ADVANCED SUPPORT PRODUCTS, INC
Tomball, TX**

July 6, 2001

Lucent Flexant Equipment Platform

PROJECT DESCRIPTION: Calculation of loads for a BTS equipment platform by ASP, part # LFX 0909-R-0, to be located in Arizona. 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 this calculations.

Applicable codes: UBC-1997

INPUT DATA

-Structure Data- (data provided by ASP)

Client specified wind speed $V := 80 \cdot \text{mph}$

Height of roof $H_{rf} := 70 \cdot \text{ft}$

Building exposure = "B"

-Nortel

Cabinet Dimensions- (data provided by ASP)

Cabinet height $H_{cab} := 72 \cdot \text{in}$

Cabinet width -total $W_{cab} := 112 \cdot \text{in}$ (3 cab)

Cabinet depth $D_{cab} := 30 \cdot \text{in}$

-UBC factors-

$C_e := 0.995$ Combined height, exposure & gust factor coefficient (UBC Table 16-G)

$C_q := 1.4$ Pressure Coefficient (UBC Table 16-H)

$q_s := 16.4 \cdot \text{psf}$ Wind stagnation pressure (UBC Table 16-F)

$I_w := 1.0$ Importance factor (UBC Table 16-K)

CALCULATIONS

-Wind pressure-

$P_{ubc} := C_e \cdot C_q \cdot q_s \cdot I_w$ $P_{ubc} = 22.85 \text{psf}$ (UBC 20-1)

-Wind load on the cabinets-

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

Front $F_f := H_{cab} \cdot W_{cab} \cdot P_{ubc}$ $F_f = 1.28 \text{kips}$

Linear shear load $S_{clin} := \frac{F_f}{W_{cab}}$ $S_{clin} = 137.07 \text{plf}$

Moment from wind load $M_{cab} := F_f \cdot \frac{H_{cab}}{2}$ $M_{cab} = 3.84 \text{ft_kip}$

Couple from moment at base $C_{base} := \frac{M_{cab}}{D_{cab}}$ $C_{base} = 1.54 \text{kip}$ (up & down)

linear couple $P_c := \frac{C_{base}}{W_{cab}}$ $P_c = 164.49 \text{plf}$

-Weight of cabinets-

Three cabinets with weights Cell cab= 986 lb, Telco cab=1747 lb & Battery =2827 lbs will be on the platform.

-Grating weight-

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

Loading on the runners

Spacing $S_{out} := 2.28 \cdot \text{ft}$

$WT_{gr1} := UW_{gr} \cdot S_{out}$ $WT_{gr1} = 17.33 \text{plf}$

-Live Load-

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

Loading on the runners

Spacing $S_{out} := 2.28 \cdot \text{ft}$

$WT_{Live} := L_L \cdot S_{out}$ $WT_{Live} = 68.4 \text{plf}$

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

$S_L := 15 \cdot \text{psf}$

Loading on the runners

Spacing $S_{out} := 2.28 \cdot \text{ft}$

$WT_{snw} := S_L \cdot S_{out}$ $WT_{snw} = 34.2 \text{plf}$

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

From FEM output

Max. deflection $\Delta_{max} := 0.010 \cdot \text{in}$

Max member stress ratio $\alpha_{max} := 0.29$

From the results of the calculations, the ASP platform is adequate to support the Lucent Flexxant equipment. 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. We recommend that a separate structural analysis to be done to confirm the load carrying capacity of the rooftop.



Software licensed to x

Part

Job Title Equipment Platform - LFX-1809-R-0

Ref

By JMG

Date 6-JLUY-01

Chd SZ

Client ASP

File 01S083-1.STD

Date/Time 09-Jul-2001 08:54

Job Information

	Engineer	Checked	Approved
Name:	JMG	SZ	RM
Date:	6-JLUY-01		

Comments

Equipment platform for AZ.

Structure Type | SPACE FRAME

Number of Nodes	74	Highest Node	74
Number of Elements	81	Highest Beam	421

Number of Basic Load Cases	4
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	5	DL
Combination	6	DL+LL+SL
Combination	7	DL + WL
Combination	8	DL + 0.75(LL+SL+WL)

Basic Load Cases

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



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Combination Load Cases

Comb.	Combination L/C Name	Primary	Primary L/C Name	Factor
5	DL	1	DL - DEAD LOAD	1.00
6	DL+LL+SL	1	DL - DEAD LOAD	1.00
		2	LL- LIVE LOAD	1.00
		3	SL- SNOW LOAD	1.00
7	DL + WL	1	DL - DEAD LOAD	1.00
		4	WL- WIND LOAD ON CABINETS	1.00
8	DL + 0.75(LL+SL+WL)	1	DL - DEAD LOAD	1.00
		2	LL- LIVE LOAD	0.75
		3	SL- SNOW LOAD	0.75
		4	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	9	6:DL+LL+SL	0.004	-0.000	-0.001	0.004	-0.00071	0.00008	-0.00032
Min X	70	5:DL	-0.007	-0.000	-0.001	0.007	-0.00017	-0.00015	0.00059
Max Y	4	7:DL + WL	0.000	0.000	-0.010	0.010	0.00051	-0.00002	0.00000
Min Y	6	6:DL+LL+SL	-0.000	-0.002	-0.002	0.003	0.00191	0.00008	-0.00017
Max Z	20	5:DL	0.001	-0.000	0.001	0.001	0.00009	-0.00008	-0.00010
Min Z	2	7:DL + WL	0.000	-0.000	-0.010	0.010	-0.00009	-0.00003	0.00001
Max rX	6	6:DL+LL+SL	-0.000	-0.002	-0.002	0.003	0.00191	0.00008	-0.00017
Min rX	5	8:DL + 0.75(LL	0.002	-0.000	-0.009	0.009	-0.00128	0.00004	-0.00018
Max rY	68	7:DL + WL	-0.004	-0.000	-0.008	0.009	-0.00025	0.00020	0.00037
Min rY	67	8:DL + 0.75(LL	-0.001	-0.001	-0.007	0.007	-0.00026	-0.00017	0.00076
Max rZ	67	7:DL + WL	-0.001	-0.001	-0.008	0.008	-0.00016	-0.00016	0.00079
Min rZ	19	7:DL + WL	-0.001	-0.001	-0.007	0.007	-0.00006	0.00007	-0.00035
Max Rst	2	7:DL + WL	0.000	-0.000	-0.010	0.010	-0.00009	-0.00003	0.00001

Beam Combined Axial and Bending Stresses Summary

Beam	L/C	Length (ft)	Max Comp			Max Tens		
			Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
100	5:DL	1.000	0.465	0.000	3	-0.382	0.000	1
	6:DL+LL+SL	1.000	2.608	0.000	3	-2.114	0.000	1
	7:DL + WL	1.000	2.878	0.000	3	-2.693	0.000	1
	8:DL + 0.75(LL	1.000	3.882	0.000	3	-3.414	0.000	1
101	5:DL	1.000	0.612	0.000	2	-0.514	0.000	4
	6:DL+LL+SL	1.000	3.475	0.000	2	-2.891	0.000	4
	7:DL + WL	1.000	2.424	0.000	2	-2.276	0.000	4
	8:DL + 0.75(LL	1.000	4.119	0.000	2	-3.618	0.000	4
102	5:DL	1.000	0.760	0.000	2	-0.659	0.000	4
	6:DL+LL+SL	1.000	3.646	0.000	2	-3.053	0.000	4
	7:DL + WL	1.000	2.470	0.000	2	-2.323	0.000	4
	8:DL + 0.75(LL	1.000	4.207	0.000	2	-3.703	0.000	4
103	5:DL	1.000	0.608	0.000	3	-0.509	0.000	1



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Beam Combined Axial and Bending Stresses Summary Cont...

Beam	L/C	Length (ft)	Max Comp			Max Tens		
			Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
	6:DL+LL+SL	1.000	3.450	0.000	3	-2.862	0.000	1
	7:DL + WL	1.000	2.197	0.000	3	-2.056	0.000	1
	8:DL + 0.75(LL	1.000	3.932	0.000	3	-3.434	0.000	1
104	5:DL	1.000	0.370	0.000	2	-0.298	0.000	4
	6:DL+LL+SL	1.000	2.433	0.000	2	-1.951	0.000	4
	7:DL + WL	1.000	2.336	0.000	2	-2.182	0.000	4
	8:DL + 0.75(LL	1.000	3.391	0.000	2	-2.951	0.000	4
105	5:DL	1.000	0.877	0.000	4			
	6:DL+LL+SL	1.000	1.450	0.000	4			
	7:DL + WL	1.000	5.446	0.000	3	-2.926	0.000	1
	8:DL + 0.75(LL	1.000	4.251	0.000	3	-1.746	0.000	1
106	5:DL	1.000	0.712	0.000	2			
	6:DL+LL+SL	1.000	1.465	0.000	2	-0.200	0.000	4
	7:DL + WL	1.000	5.076	0.000	2	-3.150	0.000	4
	8:DL + 0.75(LL	1.000	4.549	0.000	2	-2.611	0.000	4
107	5:DL	1.000	1.604	0.000	2			
	6:DL+LL+SL	1.000	2.369	0.000	2	-0.162	0.000	4
	7:DL + WL	1.000	5.812	0.000	2	-2.851	0.000	4
	8:DL + 0.75(LL	1.000	5.334	0.000	2	-2.383	0.000	4
108	5:DL	1.000	1.403	0.000	3			
	6:DL+LL+SL	1.000	2.001	0.000	3			
	7:DL + WL	1.000	5.099	0.000	2	-1.588	0.000	4
	8:DL + 0.75(LL	1.000	4.593	0.000	2	-1.096	0.000	4
109	5:DL	1.000	0.957	0.000	4			
	6:DL+LL+SL	1.000	1.326	0.000	3			
	7:DL + WL	1.000	4.324	0.000	2	-2.075	0.000	4
	8:DL + 0.75(LL	1.000	3.766	0.000	2	-1.512	0.000	4
110	5:DL	1.000	3.730	0.000	1			
	6:DL+LL+SL	1.000	4.300	0.000	1	-0.137	0.000	3
	7:DL + WL	1.000	8.098	0.000	2	-2.913	0.000	4
	8:DL + 0.75(LL	1.000	6.702	0.000	2	-1.592	0.000	4
111	5:DL	1.000	3.842	0.000	2	-0.005	0.000	4
	6:DL+LL+SL	1.000	5.890	0.000	2	-1.433	0.000	4
	7:DL + WL	1.000	5.919	0.000	2	-3.430	0.000	4
	8:DL + 0.75(LL	1.000	6.936	0.000	2	-3.645	0.000	4
112	5:DL	1.000	0.965	0.000	1			
	6:DL+LL+SL	1.000	1.336	0.000	3			
	7:DL + WL	1.000	3.616	0.000	3	-2.779	0.000	1
	8:DL + 0.75(LL	1.000	3.413	0.000	3	-2.204	0.000	1
113	5:DL	1.000	1.749	0.000	4			
	6:DL+LL+SL	1.000	2.474	0.000	3			
	7:DL + WL	1.000	4.620	0.000	3	-2.630	0.000	1
	8:DL + 0.75(LL	1.000	4.469	0.000	3	-1.949	0.000	1
114	5:DL	1.000	2.056	0.000	2			
	6:DL+LL+SL	1.000	3.160	0.000	2	-0.628	0.000	4
	7:DL + WL	1.000	4.759	0.000	2	-3.746	0.000	4



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Beam Combined Axial and Bending Stresses Summary Cont...

Beam	L/C	Length (ft)	Max Comp			Max Tens		
			Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
115	8:DL + 0.75(LL)	1.000	4.912	0.000	2	-3.317	0.000	4
	5:DL	1.000	0.733	0.000	2			
	6:DL+LL+SL	1.000	1.828	0.000	2	-0.533	0.000	4
	7:DL + WL	1.000	3.823	0.000	3	-3.995	0.000	1
116	8:DL + 0.75(LL)	1.000	3.738	0.000	2	-3.336	0.000	4
	5:DL	1.000	1.078	0.000	3			
	6:DL+LL+SL	1.000	3.110	0.000	3	-1.116	0.000	1
	7:DL + WL	1.000	4.519	0.000	3	-4.410	0.000	1
117	8:DL + 0.75(LL)	1.000	5.183	0.000	3	-4.289	0.000	1
	5:DL	1.000	0.634	0.000	1	-0.530	0.000	3
	6:DL+LL+SL	1.000	3.798	0.000	4	-3.171	0.000	2
	7:DL + WL	1.000	1.470	0.000	2	-1.432	0.000	4
118	8:DL + 0.75(LL)	1.000	1.458	0.000	4	-1.011	0.000	2
	5:DL	1.000	0.918	0.000	1	-0.791	0.000	3
	6:DL+LL+SL	1.000	5.530	0.000	4	-4.765	0.000	2
	7:DL + WL	1.000	0.724	0.000	2	-0.630	0.000	4
119	8:DL + 0.75(LL)	1.000	3.227	0.000	1	-2.646	0.000	3
	5:DL	1.000	0.968	0.000	4	-0.839	0.000	2
	6:DL+LL+SL	1.000	5.689	0.000	4	-4.913	0.000	2
	7:DL + WL	1.000	0.594	0.000	3	-0.494	0.000	1
120	8:DL + 0.75(LL)	1.000	3.427	0.000	4	-2.836	0.000	2
	5:DL	1.000	1.004	0.000	1	-0.875	0.000	3
	6:DL+LL+SL	1.000	5.761	0.000	1	-4.985	0.000	3
	7:DL + WL	1.000	0.460	0.000	2	-0.358	0.000	4
121	8:DL + 0.75(LL)	1.000	3.567	0.000	1	-2.973	0.000	3
	5:DL	1.000	0.889	0.000	4	-0.775	0.000	2
	6:DL+LL+SL	1.000	4.090	0.000	4	-3.451	0.000	2
	7:DL + WL	1.000	0.852	0.000	3	-0.791	0.000	1
122	8:DL + 0.75(LL)	1.000	2.057	0.000	4	-1.589	0.000	2
	5:DL	1.000	0.730	0.000	1	-0.623	0.000	3
	6:DL+LL+SL	1.000	3.948	0.000	4	-3.316	0.000	2
	7:DL + WL	1.000	1.396	0.000	3	-1.355	0.000	1
123	8:DL + 0.75(LL)	1.000	1.602	0.000	4	-1.150	0.000	2
	5:DL	1.000	1.004	0.000	2			
	6:DL+LL+SL	1.000	2.996	0.000	2	-0.595	0.000	4
	7:DL + WL	1.000	4.547	0.000	3	-4.419	0.000	1
124	8:DL + 0.75(LL)	1.000	5.056	0.000	3	-4.029	0.000	1
	5:DL	1.000	1.101	0.000	4			
	6:DL+LL+SL	1.000	1.796	0.000	4			
	7:DL + WL	1.000	5.696	0.000	2	-2.388	0.000	4
125	8:DL + 0.75(LL)	1.000	4.256	0.000	3	-1.053	0.000	1
	5:DL	1.000	0.355	0.000	3	-0.276	0.000	1
	6:DL+LL+SL	1.000	2.424	0.000	3	-1.936	0.000	1
	7:DL + WL	1.000	2.762	0.000	2	-2.582	0.000	4
126	8:DL + 0.75(LL)	1.000	3.696	0.000	3	-3.235	0.000	1
	5:DL	1.000	0.609	0.000	1	-0.505	0.000	3



Software licensed to x

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Beam Combined Axial and Bending Stresses Summary Cont...

Beam	L/C	Length (ft)	Max Comp			Max Tens		
			Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
	6:DL+LL+SL	1.000	3.881	0.000	4	-3.250	0.000	2
	7:DL + WL	1.000	0.893	0.000	3	-0.831	0.000	1
	8:DL + 0.75(LL	1.000	2.078	0.000	4	-1.610	0.000	2
127	5:DL	1.000	2.048	0.000	2	-1.301	0.000	4
	6:DL+LL+SL	1.000	4.070	0.000	2	-2.657	0.000	4
	7:DL + WL	1.000	3.618	0.000	2	-3.562	0.000	4
	8:DL + 0.75(LL	1.000	4.742	0.000	2	-4.014	0.000	4
128	5:DL	1.000	1.544	0.000	2	-0.827	0.000	4
	6:DL+LL+SL	1.000	1.984	0.000	1	-0.876	0.000	3
	7:DL + WL	1.000	5.906	0.000	2	-4.555	0.000	4
	8:DL + 0.75(LL	1.000	4.466	0.000	2	-2.979	0.000	4
129	5:DL	1.000	0.529	0.000	2	-0.447	0.000	4
	6:DL+LL+SL	1.000	2.521	0.000	2	-2.031	0.000	4
	7:DL + WL	1.000	2.235	0.000	2	-2.087	0.000	4
	8:DL + 0.75(LL	1.000	3.302	0.000	2	-2.866	0.000	4
130	5:DL	1.000	0.403	0.000	4	-0.309	0.000	2
	6:DL+LL+SL	1.000	3.628	0.000	4	-3.009	0.000	2
	7:DL + WL	1.000	1.075	0.000	2	-1.026	0.000	4
	8:DL + 0.75(LL	1.000	1.750	0.000	4	-1.296	0.000	2
131	5:DL	1.000	4.707	0.000	3	-2.731	0.000	1
	6:DL+LL+SL	1.000	6.611	0.000	3	-3.975	0.000	1
	7:DL + WL	1.000	6.126	0.000	3	-4.823	0.000	1
	8:DL + 0.75(LL	1.000	7.199	0.000	3	-5.233	0.000	1
132	5:DL	1.000	4.440	0.000	3	-2.545	0.000	1
	6:DL+LL+SL	1.000	4.772	0.000	4	-2.471	0.000	2
	7:DL + WL	1.000	8.221	0.000	3	-5.694	0.000	1
	8:DL + 0.75(LL	1.000	7.157	0.000	3	-4.484	0.000	1
133	5:DL	1.000	0.966	0.000	3	-0.868	0.000	1
	6:DL+LL+SL	1.000	3.086	0.000	3	-2.577	0.000	1
	7:DL + WL	1.000	2.663	0.000	3	-2.494	0.000	1
	8:DL + 0.75(LL	1.000	3.829	0.000	3	-3.370	0.000	1
200	5:DL	4.000	0.687	4.000	3	-0.650	4.000	1
	6:DL+LL+SL	4.000	4.162	4.000	4	-3.946	4.000	2
	7:DL + WL	4.000	1.512	4.000	3	-1.602	4.000	1
	8:DL + 0.75(LL	4.000	3.856	4.000	4	-3.780	4.000	2
201	5:DL	4.000	0.646	2.333	2	-0.593	2.333	4
	6:DL+LL+SL	4.000	3.852	2.333	1	-3.530	2.333	3
	7:DL + WL	4.000	1.042	1.667	2	-1.084	1.667	4
	8:DL + 0.75(LL	4.000	3.281	2.000	2	-3.098	2.000	4
202	5:DL	4.000	0.675	2.333	1	-0.620	2.333	3
	6:DL+LL+SL	4.000	3.993	2.333	1	-3.663	2.333	3
	7:DL + WL	4.000	1.040	1.667	1	-1.073	1.667	3
	8:DL + 0.75(LL	4.000	3.384	2.333	1	-3.190	2.333	3
203	5:DL	4.000	0.654	2.333	2	-0.596	2.333	4
	6:DL+LL+SL	4.000	3.956	2.333	2	-3.621	2.333	4
	7:DL + WL	4.000	0.993	1.667	2	-1.018	1.667	4



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Beam Combined Axial and Bending Stresses Summary Cont...

Beam	L/C	Length (ft)	Max Comp			Max Tens		
			Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
204	8:DL + 0.75(LL)	4.000	3.343	2.333	2	-3.139	2.333	4
	5:DL	4.000	0.552	0.000	3	-0.500	0.000	1
	6:DL+LL+SL	4.000	3.973	4.000	4	-3.738	4.000	2
	7:DL + WL	4.000	1.190	4.000	4	-1.240	4.000	2
	8:DL + 0.75(LL)	4.000	3.613	4.000	4	-3.500	4.000	2
205	5:DL	3.000	0.351	0.000	4	-0.326	0.000	2
	6:DL+LL+SL	3.000	2.045	0.000	4	-1.900	0.000	2
	7:DL + WL	3.000	1.821	3.000	3	-1.650	3.000	1
	8:DL + 0.75(LL)	3.000	2.391	3.000	3	-2.167	3.000	1
206	5:DL	3.000	0.367	3.000	3	-0.332	3.000	1
	6:DL+LL+SL	3.000	2.170	1.250	2	-1.972	1.250	4
	7:DL + WL	3.000	1.550	3.000	3	-1.405	3.000	1
	8:DL + 0.75(LL)	3.000	2.558	3.000	3	-2.318	3.000	1
207	5:DL	3.000	0.432	3.000	3	-0.391	3.000	1
	6:DL+LL+SL	3.000	2.252	1.250	2	-2.047	1.250	4
	7:DL + WL	3.000	1.545	3.000	3	-1.399	3.000	1
	8:DL + 0.75(LL)	3.000	2.583	3.000	3	-2.340	3.000	1
208	5:DL	3.000	0.368	1.250	1	-0.333	1.250	3
	6:DL+LL+SL	3.000	2.232	1.250	1	-2.036	1.250	3
	7:DL + WL	3.000	1.409	3.000	3	-1.277	3.000	1
	8:DL + 0.75(LL)	3.000	2.440	3.000	3	-2.210	3.000	1
209	5:DL	3.000	0.670	0.000	3	-0.657	0.000	1
	6:DL+LL+SL	3.000	2.322	0.000	3	-2.192	0.000	1
	7:DL + WL	3.000	1.392	3.000	3	-1.261	3.000	1
	8:DL + 0.75(LL)	3.000	2.013	3.000	3	-1.824	3.000	1
210	5:DL	4.000	0.652	4.000	3	-0.610	4.000	1
	6:DL+LL+SL	4.000	4.096	4.000	4	-3.870	4.000	2
	7:DL + WL	4.000	1.450	4.000	4	-1.535	4.000	2
	8:DL + 0.75(LL)	4.000	3.837	4.000	4	-3.753	4.000	2
211	5:DL	3.000	0.366	0.000	4	-0.347	0.000	2
	6:DL+LL+SL	3.000	2.081	0.000	4	-1.946	0.000	2
	7:DL + WL	3.000	1.768	3.000	3	-1.602	3.000	1
	8:DL + 0.75(LL)	3.000	2.300	3.000	3	-2.084	3.000	1
212	5:DL	4.000	0.685	4.000	3	-0.651	4.000	1
	6:DL+LL+SL	4.000	4.096	4.000	4	-3.875	4.000	2
	7:DL + WL	4.000	1.278	4.000	4	-1.328	4.000	2
	8:DL + 0.75(LL)	4.000	3.706	4.000	4	-3.595	4.000	2
213	5:DL	3.000	0.454	0.000	3	-0.428	0.000	1
	6:DL+LL+SL	3.000	2.084	0.000	3	-1.943	0.000	1
	7:DL + WL	3.000	1.328	3.000	3	-1.203	3.000	1
	8:DL + 0.75(LL)	3.000	1.973	3.000	3	-1.787	3.000	1
214	5:DL	3.000	0.551	0.000	4	-0.507	0.000	2
	6:DL+LL+SL	3.000	2.275	0.000	4	-2.114	0.000	2
	7:DL + WL	3.000	1.509	3.000	3	-1.368	3.000	1
	8:DL + 0.75(LL)	3.000	2.185	3.000	3	-1.980	3.000	1
215	5:DL	4.000	0.885	4.000	4	-0.864	4.000	2



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Job Title **Equipment Platform - LFX-1809-R-0**

Part

Ref

By **JMG** Date **6-JLUY-01** Chd **SZ**

Client **ASP**

File **01S083-1.STD**

Date/Time **09-Jul-2001 08:54**

Beam Combined Axial and Bending Stresses Summary Cont...

Beam	L/C	Length (ft)	Max Comp			Max Tens		
			Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
	6:DL+LL+SL	4.000	4.350	4.000	4	-4.145	4.000	2
	7:DL + WL	4.000	1.481	4.000	3	-1.545	4.000	1
	8:DL + 0.75(LL	4.000	3.812	4.000	4	-3.717	4.000	2
300	5:DL	2.500	0.173	2.500	2	-0.164	2.500	3
	6:DL+LL+SL	2.500	0.890	2.500	2	-0.844	2.500	3
	7:DL + WL	2.500	0.963	2.500	1	-0.982	0.000	1
	8:DL + 0.75(LL	2.500	0.713	0.000	2	-0.949	0.000	1
301	5:DL	2.500	0.048	0.000	2	-0.044	0.000	1
	6:DL+LL+SL	2.500	0.283	0.000	2	-0.168	0.000	3
	7:DL + WL	2.500	1.112	2.500	1	-1.030	0.000	1
	8:DL + 0.75(LL	2.500	0.832	2.500	1	-0.810	0.000	1
302	5:DL	2.500	0.180	0.000	1	-0.282	2.500	1
	6:DL+LL+SL	2.500	0.321	0.000	2	-0.253	2.500	1
	7:DL + WL	2.500	0.767	2.500	1	-0.731	0.000	1
	8:DL + 0.75(LL	2.500	0.708	2.500	3	-0.567	0.000	1
303	5:DL	2.500	0.174	2.500	1	-0.159	0.000	1
	6:DL+LL+SL	2.500	0.305	2.500	1	-0.283	0.000	1
	7:DL + WL	2.500	1.194	2.500	1	-1.051	0.000	1
	8:DL + 0.75(LL	2.500	1.037	2.500	1	-0.921	0.000	1
304	5:DL	2.500	0.200	2.500	1	-0.235	0.000	1
	6:DL+LL+SL	2.500	0.457	2.500	1	-0.398	0.000	1
	7:DL + WL	2.500	1.047	2.500	1	-1.014	0.000	1
	8:DL + 0.75(LL	2.500	1.028	2.500	1	-0.942	0.000	1
305	5:DL	2.500	0.635	0.000	1	-0.859	2.500	1
	6:DL+LL+SL	2.500	0.902	0.000	2	-1.408	2.500	1
	7:DL + WL	2.500	0.896	0.000	2	-0.673	0.000	3
	8:DL + 0.75(LL	2.500	1.134	0.000	2	-0.939	0.000	3
306	5:DL	2.500	0.188	2.500	2	-0.176	2.500	3
	6:DL+LL+SL	2.500	0.946	2.500	2	-0.890	2.500	3
	7:DL + WL	2.500	0.703	0.000	2	-0.451	0.000	1
	8:DL + 0.75(LL	2.500	0.917	0.000	2	-0.685	0.000	3
307	5:DL	2.500	0.241	0.000	2	-0.396	2.500	1
	6:DL+LL+SL	2.500	0.670	0.000	2	-1.078	2.500	1
	7:DL + WL	2.500	0.910	0.000	2	-0.817	0.000	3
	8:DL + 0.75(LL	2.500	1.064	0.000	2	-0.978	0.000	3
308	5:DL	2.500	0.764	2.500	1	-0.893	0.000	1
	6:DL+LL+SL	2.500	1.294	2.500	2	-1.226	2.500	3
	7:DL + WL	2.500	1.817	2.500	1	-1.857	0.000	1
	8:DL + 0.75(LL	2.500	1.156	2.500	2	-1.842	0.000	1
400	5:DL	2.026	0.479	0.000	2	-0.967	0.000	1
	6:DL+LL+SL	2.026	0.450	2.026	2	-1.158	0.000	1
	7:DL + WL	2.026	0.987	0.000	2	-1.820	0.000	1
	8:DL + 0.75(LL	2.026	0.771	0.000	2	-1.750	0.000	1
401	5:DL	0.250	0.304	0.000	2	-0.459	0.000	1
	6:DL+LL+SL	0.250	0.383	0.000	2	-0.536	0.000	1
	7:DL + WL	0.250	0.519	0.000	2	-1.014	0.000	1



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Part

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By **JMG**

Date **6-JULY-01**

Chd **SZ**

Client **ASP**

File **01S083-1.STD**

Date/Time **09-Jul-2001 08:54**

Beam Combined Axial and Bending Stresses Summary Cont...

Beam	L/C	Length (ft)	Max Comp			Max Tens		
			Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
	8:DL + 0.75(LL)	0.250	0.525	0.000	2	-0.933	0.000	1
402	5:DL	1.714	0.581	1.714	2	-0.968	1.714	1
	6:DL+LL+SL	1.714	0.784	1.714	2	-1.010	1.714	1
	7:DL + WL	1.714	0.870	1.714	2	-1.418	1.714	1
	8:DL + 0.75(LL)	1.714	0.950	1.714	2	-1.337	1.714	1
403	5:DL	0.563	0.601	0.563	1	-1.354	0.000	1
	6:DL+LL+SL	0.563	0.714	0.563	1	-1.499	0.000	1
	7:DL + WL	0.563	0.851	0.000	2	-1.890	0.000	1
	8:DL + 0.75(LL)	0.563	0.901	0.000	2	-1.864	0.000	1
404	5:DL	1.464	0.975	0.488	1	-1.526	1.464	1
	6:DL+LL+SL	1.464	1.034	0.366	1	-1.623	1.464	1
	7:DL + WL	1.464	1.233	0.488	1	-1.908	1.464	1
	8:DL + 0.75(LL)	1.464	1.203	0.488	1	-1.885	1.464	1
405	5:DL	0.813	0.746	0.000	2	-1.343	0.000	1
	6:DL+LL+SL	0.813	0.933	0.000	2	-1.458	0.000	1
	7:DL + WL	0.813	0.985	0.000	2	-1.765	0.000	1
	8:DL + 0.75(LL)	0.813	1.066	0.000	2	-1.746	0.000	1
406	5:DL	0.750	0.576	0.063	1	-0.741	0.750	1
	6:DL+LL+SL	0.750	0.696	0.000	1	-0.882	0.750	1
	7:DL + WL	0.750	0.622	0.063	1	-0.870	0.750	1
	8:DL + 0.75(LL)	0.750	0.684	0.063	1	-0.944	0.750	1
407	5:DL	1.526	1.661	1.526	2	-2.846	1.526	1
	6:DL+LL+SL	1.526	1.696	1.526	2	-2.699	1.526	1
	7:DL + WL	1.526	2.410	1.526	2	-3.686	1.526	1
	8:DL + 0.75(LL)	1.526	2.249	1.526	2	-3.366	1.526	1
408	5:DL	2.026	0.532	0.000	2	-0.905	0.000	1
	6:DL+LL+SL	2.026	0.599	0.000	2	-0.677	0.000	1
	7:DL + WL	2.026	0.302	1.013	1	-0.622	0.000	1
	8:DL + 0.75(LL)	2.026	0.311	1.013	1	-0.521	0.000	1
409	5:DL	0.250	0.297	0.000	2	-0.461	0.000	1
	6:DL+LL+SL	0.250	0.360	0.250	1	-0.761	0.000	1
	7:DL + WL	0.250	0.260	0.000	3	-0.363	0.000	1
	8:DL + 0.75(LL)	0.250	0.243	0.250	1	-0.613	0.000	1
410	5:DL	1.714	0.696	1.714	2	-1.226	1.714	1
	6:DL+LL+SL	1.714	0.786	1.714	2	-1.663	1.714	1
	7:DL + WL	1.714	0.373	1.142	2	-1.064	1.714	1
	8:DL + 0.75(LL)	1.714	0.444	1.714	2	-1.432	1.714	1
411	5:DL	0.563	0.918	0.563	1	-1.771	0.000	1
	6:DL+LL+SL	0.563	1.636	0.563	1	-2.361	0.000	1
	7:DL + WL	0.563	0.839	0.563	1	-1.590	0.000	1
	8:DL + 0.75(LL)	0.563	1.397	0.563	1	-2.078	0.000	1
412	5:DL	1.464	1.499	0.488	1	-1.971	1.464	1
	6:DL+LL+SL	1.464	1.892	0.244	1	-2.567	1.464	1
	7:DL + WL	1.464	1.422	0.488	1	-1.839	1.464	1
	8:DL + 0.75(LL)	1.464	1.723	0.366	1	-2.319	1.464	1
413	5:DL	0.813	0.869	0.000	2	-1.723	0.000	1



Software licensed to x

Job Title **Equipment Platform - LFX-1809-R-0**

Part

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By **JMG**

Date **6-JULY-01**

Chd **SZ**

Client **ASP**

File **01S083-1.STD**

Date/Time **09-Jul-2001 08:54**

Beam Combined Axial and Bending Stresses Summary Cont...

Beam	L/C	Length (ft)	Max Comp			Max Tens		
			Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
	6:DL+LL+SL	0.813	1.386	0.813	1	-2.317	0.000	1
	7:DL + WL	0.813	0.529	0.813	1	-1.564	0.000	1
	8:DL + 0.75(LL	0.813	1.119	0.813	1	-2.049	0.000	1
414	5:DL	0.750	0.642	0.063	1	-0.674	0.750	1
	6:DL+LL+SL	0.750	1.397	0.000	1	-1.100	0.750	1
	7:DL + WL	0.750	0.546	0.063	1	-0.632	0.750	1
	8:DL + 0.75(LL	0.750	1.131	0.000	1	-0.962	0.750	1
415	5:DL	1.526	1.615	1.526	2	-2.983	1.526	1
	6:DL+LL+SL	1.526	1.478	1.526	2	-3.157	1.526	1
	7:DL + WL	1.526	0.809	1.526	2	-2.568	1.526	1
	8:DL + 0.75(LL	1.526	0.908	1.526	2	-2.802	1.526	1
416	5:DL	2.990	0.763	0.000	2	-1.566	0.000	1
	6:DL+LL+SL	2.990	0.857	0.000	2	-1.371	0.000	1
	7:DL + WL	2.990	0.669	1.495	1	-1.189	0.000	1
	8:DL + 0.75(LL	2.990	0.684	1.495	1	-1.137	0.000	1
417	5:DL	2.990	0.718	1.495	1	-1.629	0.000	1
	6:DL+LL+SL	2.990	0.745	1.744	1	-1.796	0.000	1
	7:DL + WL	2.990	1.643	0.000	2	-3.116	0.000	1
	8:DL + 0.75(LL	2.990	1.348	0.000	2	-2.869	0.000	1
418	5:DL	2.990	0.966	1.246	1	-1.687	2.990	1
	6:DL+LL+SL	2.990	1.048	1.246	1	-1.957	2.990	1
	7:DL + WL	2.990	0.730	1.495	1	-1.007	2.990	1
	8:DL + 0.75(LL	2.990	0.815	1.246	1	-1.380	2.990	1
419	5:DL	2.990	0.902	1.246	1	-1.627	2.990	1
	6:DL+LL+SL	2.990	0.857	1.495	1	-1.437	2.990	1
	7:DL + WL	2.990	1.805	2.990	2	-2.757	2.990	1
	8:DL + 0.75(LL	2.990	1.610	2.990	2	-2.332	2.990	1
420	5:DL	3.073	2.931	1.793	1	-4.252	0.000	1
	6:DL+LL+SL	3.073	2.990	1.793	1	-4.422	0.000	1
	7:DL + WL	3.073	3.902	1.536	1	-5.510	0.000	1
	8:DL + 0.75(LL	3.073	3.694	1.793	1	-5.323	0.000	1
421	5:DL	3.073	3.052	1.793	1	-4.145	0.000	1
	6:DL+LL+SL	3.073	3.011	1.536	1	-3.843	0.000	1
	7:DL + WL	3.073	2.758	1.536	1	-3.730	0.000	1
	8:DL + 0.75(LL	3.073	2.811	1.536	1	-3.608	0.000	1



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Reaction Summary

	Node	L/C	Horizontal	Vertical	Horizontal	Moment		
			FX (kip)	FY (kip)	FZ (kip)	MX (kip*ft)	MY (kip*ft)	MZ (kip*ft)
Max FX	39	7:DL + WL	0.066	1.870	0.088	0.000	0.000	0.000
Min FX	73	7:DL + WL	-0.116	0.912	0.079	0.000	0.000	0.000
Max FY	39	7:DL + WL	0.066	1.870	0.088	0.000	0.000	0.000
Min FY	44	7:DL + WL	-0.003	-0.060	0.107	0.000	0.000	0.000
Max FZ	45	8:DL + 0.75(LL)	-0.002	0.324	0.131	0.000	0.000	0.000
Min FZ	49	6:DL+LL+SL	0.000	0.282	-0.151	0.000	0.000	0.000
Max MX	29	5:DL	-0.001	0.032	0.011	0.000	0.000	0.000
Min MX	29	5:DL	-0.001	0.032	0.011	0.000	0.000	0.000
Max MY	29	5:DL	-0.001	0.032	0.011	0.000	0.000	0.000
Min MY	29	5:DL	-0.001	0.032	0.011	0.000	0.000	0.000
Max MZ	29	5:DL	-0.001	0.032	0.011	0.000	0.000	0.000
Min MZ	29	5:DL	-0.001	0.032	0.011	0.000	0.000	0.000



Software licensed to x

Part

Job Title Equipment Platform - LFX-1809-R-0

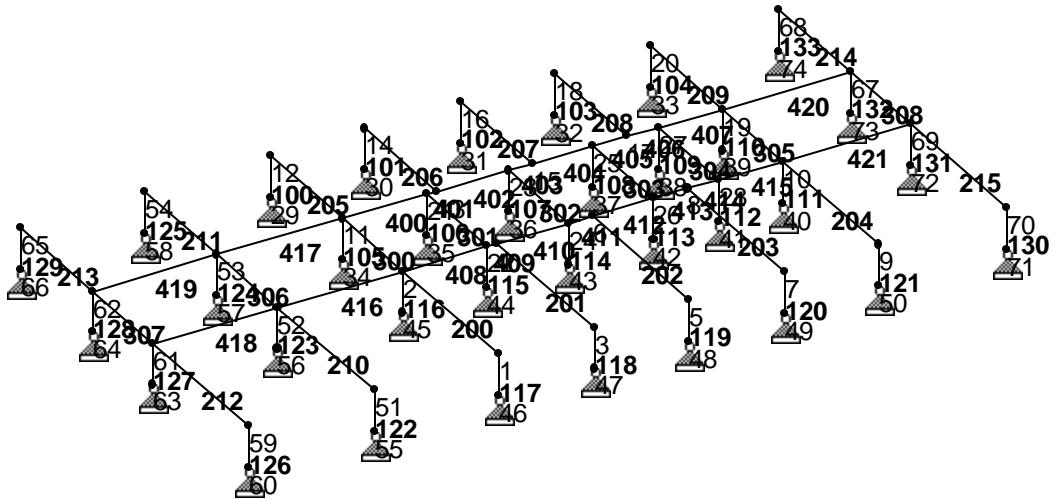
Ref

By JMG Date 6-JULY-01 Chd SZ

Client ASP

File 01S083-1.STD

Date/Time 09-Jul-2001 08:54



Whole Structure



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Job Title Equipment Platform - LFX-1809-R-0

Part

Ref

By **JMG**

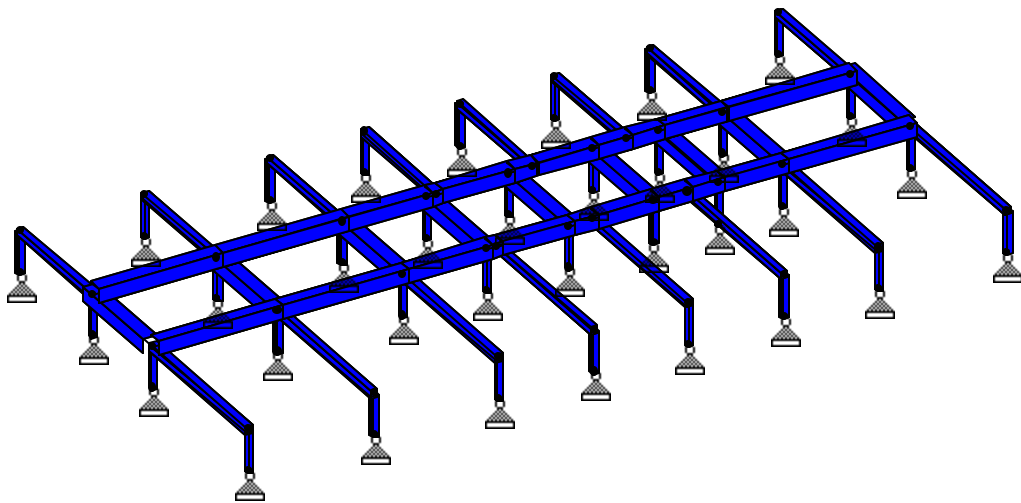
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Chd **SZ**

Client **ASP**

File **01S083-1.STD**

Date/Time **09-Jul-2001 08:54**



3-d



Software licensed to x

Job Title Equipment Platform - LFX-1809-R-0

Part

Ref

By JMG

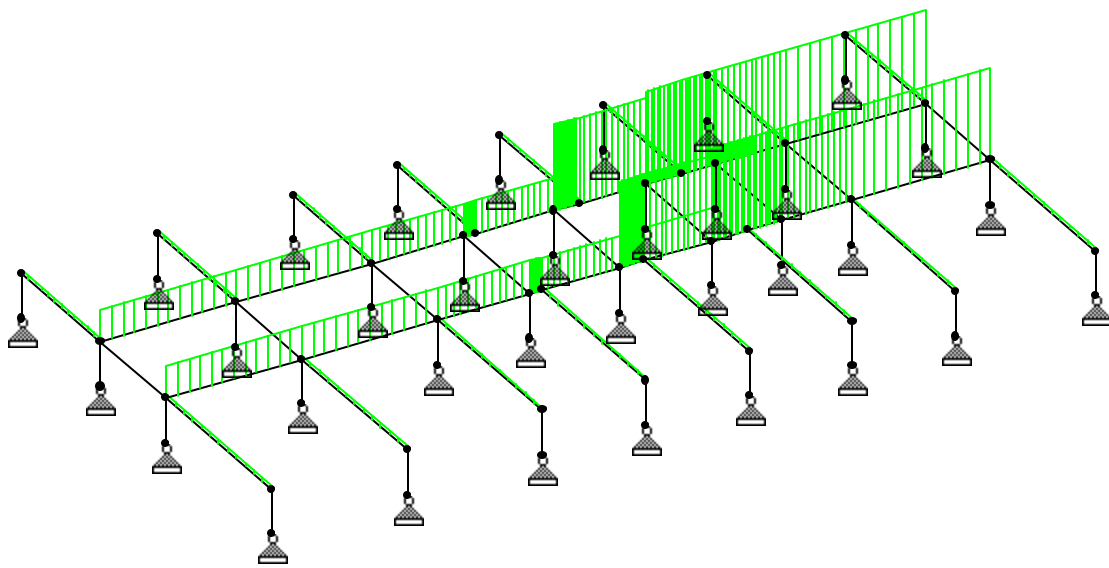
Date 6-JULY-01

Chd SZ

Client ASP

File 01S083-1.STD

Date/Time 09-Jul-2001 08:54



Loading



Software licensed to x

Job Title Equipment Platform - LFX-1809-R-0

Part

Ref

By **JMG**

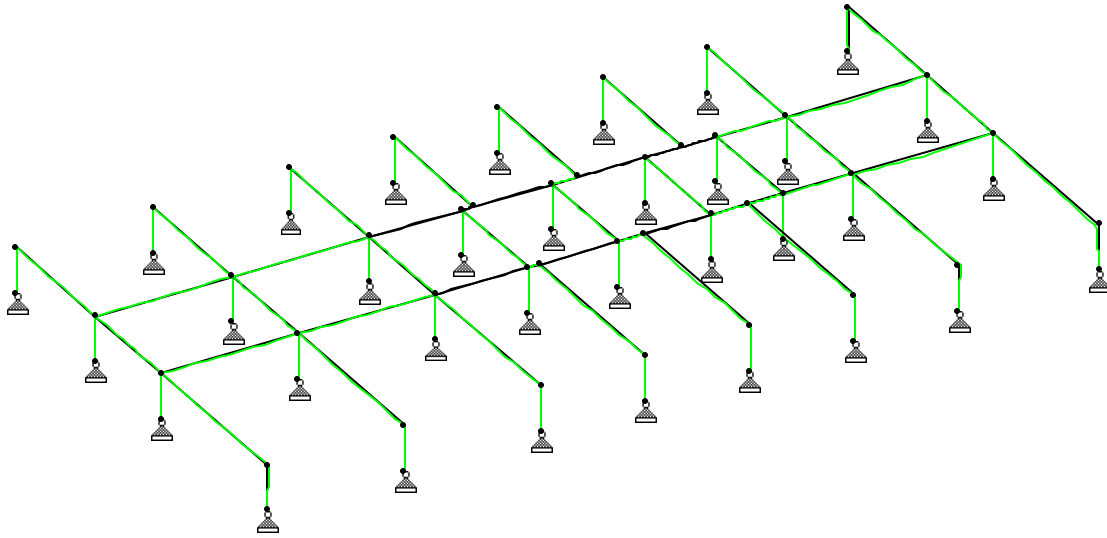
Date **6-JLUY-01**

Chd **SZ**

Client **ASP**

File **01S083-1.STD**

Date/Time **09-Jul-2001 08:54**



Whole Structure Displacements 0.1in:1ft 1 DL - DEAD LOAD



Software licensed to x

Part

Job Title Equipment Platform - LFX-1809-R-0

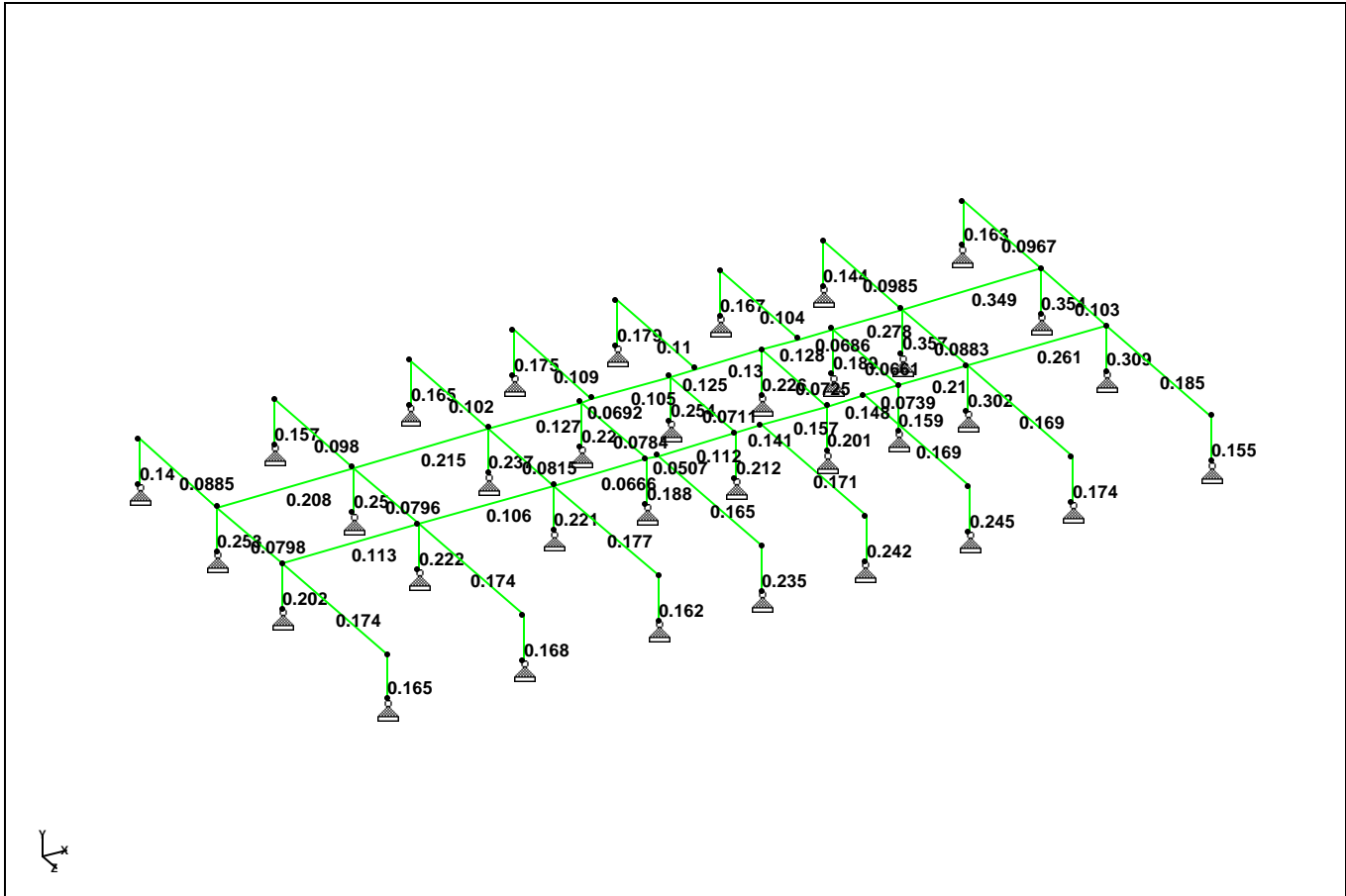
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By JMG Date 6-JULY-01 Chd SZ

Client ASP

File 01S083-1.STD

Date/Time 09-Jul-2001 08:54



Memb Stress ratio