

**ASP - EQUIPMENT PLATFORM DESIGN CHECK**

**NTM1308R Platform  
Nortel Equipment  
Michigan**

For:

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

May 11, 2001

**Nortel Equipment Platform**

**PROJECT DESCRIPTION:** Calculation of loads for a BTS equipment platform by ASP, part # NTM1308R, to be located in Michigan. 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  $W_{cab} := 120 \cdot \text{in}$  (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  $F_f := H_{cab} \cdot W_{cab} \cdot P_{ubc}$   $F_f = 1.37 \text{kips}$

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

Moment from wind load  $M_{cab} := F_f \cdot \frac{H_{cab}}{2}$   $M_{cab} = 4.11 \text{ft\_kip}$

Couple from moment at base  $C_{base} := \frac{M_{cab}}{D_{cab}}$   $C_{base} = 1.64 \text{kip}$  (up & down)

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

**-Weight of cabinets-**

Three cabinets with weights of 1,200lb, 1,300lb & 2830 lbs will be on the Nortel platform.

**-Grating weight-**

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

Loading on the runners

Spacing  $S_{out} := 2.65 \cdot \text{ft}$

$WT_{gr1} := UW_{gr} \cdot S_{out}$   $WT_{gr1} = 20.14 \text{plf}$

**-Live Load-**

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

Loading on the runners

Spacing  $S_{out} := 2.65 \cdot \text{ft}$

$WT_{Live} := L_L \cdot S_{out}$   $WT_{Live} = 79.5 \text{plf}$

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

$S_L := 60 \cdot \text{psf}$

Loading on the runners

Spacing  $S_{out} := 2.65 \cdot \text{ft}$

$WT_{snw} := S_L \cdot S_{out}$   $WT_{snw} = 159 \text{plf}$

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

From FEM output

Max. deflection  $\Delta_{max} := 0.022 \cdot \text{in}$

Max member stress ratio  $\alpha_{max} := 0.55$

***From the results of the calculations, the ASP platform is adequate to support the Nortel Metrocell 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.***



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Job Title Equipment Platform - NTM1308R

Part

Ref

By **JMG**

Date **14-May-01**

Chd **RS**

Client **ASP**

File **01S054-1.STD**

Date/Time **15-Oct-2002 15:07**

**Job Information**

	Engineer	Checked	Approved
<b>Name:</b>	JMG	RS	KB
<b>Date:</b>	14-May-01		

*Comments*

Equipment platform for MI.

**Structure Type** | SPACE FRAME

Number of Nodes	48	Highest Node	48
Number of Elements	52	Highest Beam	52

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	1	7:DL + WL	<b>0.002</b>	-0.000	-0.012	0.012	-0.00046	0.00002	-0.00017
Min X	10	7:DL + WL	<b>-0.002</b>	0.000	-0.018	0.019	-0.00083	-0.00002	0.00019
Max Y	7	7:DL + WL	-0.000	<b>0.000</b>	-0.012	0.012	-0.00006	0.00005	0.00014
Min Y	20	8:DL + 0.75(LL	0.000	<b>-0.001</b>	-0.014	0.015	-0.00025	0.00009	-0.00015
Max Z	15	6:DL+LL+SL	-0.001	-0.000	<b>0.000</b>	0.001	0.00072	0.00004	0.00007
Min Z	13	7:DL + WL	-0.000	-0.000	<b>-0.020</b>	0.020	-0.00015	-0.00001	0.00012
Max rX	19	6:DL+LL+SL	0.000	-0.000	0.000	0.001	<b>0.00072</b>	-0.00004	-0.00004
Min rX	34	7:DL + WL	0.000	0.000	0.000	0.000	<b>-0.00234</b>	-0.00001	-0.00002
Max rY	6	7:DL + WL	0.000	-0.000	-0.012	0.012	-0.00004	<b>0.00013</b>	-0.00012
Min rY	2	7:DL + WL	0.000	-0.000	-0.012	0.012	-0.00018	<b>-0.00023</b>	0.00012
Max rZ	30	7:DL + WL	0.000	0.000	0.000	0.000	-0.00185	-0.00002	<b>0.00021</b>
Min rZ	43	7:DL + WL	0.000	0.000	0.000	0.000	-0.00126	0.00002	<b>-0.00022</b>
Max Rst	16	7:DL + WL	0.000	-0.001	-0.020	<b>0.020</b>	-0.00016	-0.00001	0.00013

**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
1	5:DL	3.000	0.262	3.000	3	-0.248	3.000	1
	6:DL+LL+SL	3.000	2.628	3.000	3	-2.504	3.000	1
	7:DL + WL	3.000	2.074	0.000	3	-1.879	0.000	1
	8:DL + 0.75(LL	3.000	2.476	0.000	3	-2.243	0.000	1
2	5:DL	2.500	0.067	2.500	2	-0.132	0.000	1
	6:DL+LL+SL	2.500	0.612	2.500	2	-0.931	0.000	1
	7:DL + WL	2.500	1.669	2.500	1	-2.117	0.000	1
	8:DL + 0.75(LL	2.500	0.667	2.292	1	-2.220	0.000	1
3	5:DL	3.000	0.283	0.000	3	-0.273	0.000	1
	6:DL+LL+SL	3.000	2.643	0.000	3	-2.522	0.000	1
	7:DL + WL	3.000	1.713	0.000	4	-1.881	0.000	2
	8:DL + 0.75(LL	3.000	3.100	0.000	4	-3.141	0.000	2
4	5:DL	3.000	0.281	3.000	4	-0.267	3.000	2



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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	3.000	2.599	3.000	3	-2.474	3.000	1
	7:DL + WL	3.000	1.949	0.000	3	-1.766	0.000	1
	8:DL + 0.75(LL)	3.000	2.385	0.000	3	-2.161	0.000	1
5	5:DL	2.500	0.098	0.000	2	-0.155	2.500	1
	6:DL+LL+SL	2.500	0.609	0.000	2	-1.003	2.500	1
	7:DL + WL	2.500	1.407	0.000	2	-1.407	0.000	3
	8:DL + 0.75(LL)	2.500	1.462	0.000	2	-1.432	0.000	3
6	5:DL	3.000	0.271	0.000	4	-0.261	0.000	2
	6:DL+LL+SL	3.000	2.618	0.000	3	-2.497	0.000	1
	7:DL + WL	3.000	1.558	3.000	1	-1.719	3.000	3
	8:DL + 0.75(LL)	3.000	2.836	0.000	3	-2.871	0.000	1
7	5:DL	3.000	0.468	0.000	3	-0.448	0.000	1
	6:DL+LL+SL	3.000	5.186	0.000	3	-4.944	0.000	1
	7:DL + WL	3.000	2.399	3.000	1	-2.648	3.000	3
	8:DL + 0.75(LL)	3.000	5.358	0.000	4	-5.373	0.000	2
8	5:DL	3.000	0.455	3.000	3	-0.430	3.000	1
	6:DL+LL+SL	3.000	5.183	3.000	3	-4.937	3.000	1
	7:DL + WL	3.000	3.126	0.000	3	-2.832	0.000	1
	8:DL + 0.75(LL)	3.000	4.179	0.000	3	-3.786	0.000	1
9	5:DL	2.500	0.116	2.500	2	-0.209	0.000	1
	6:DL+LL+SL	2.500	1.178	2.500	2	-1.832	0.000	1
	7:DL + WL	2.500	1.566	2.500	1	-1.841	0.000	1
	8:DL + 0.75(LL)	2.500	1.326	0.000	2	-2.650	0.000	1
10	5:DL	3.000	0.351	0.000	3	-0.320	0.000	1
	6:DL+LL+SL	3.000	5.053	0.000	4	-4.800	0.000	2
	7:DL + WL	3.000	2.536	3.000	1	-2.800	3.000	3
	8:DL + 0.75(LL)	3.000	5.170	0.000	3	-5.193	0.000	1
11	5:DL	3.000	0.610	3.000	3	-0.591	3.000	1
	6:DL+LL+SL	3.000	5.256	3.000	3	-5.016	3.000	1
	7:DL + WL	3.000	3.327	0.000	3	-3.014	0.000	1
	8:DL + 0.75(LL)	3.000	4.312	0.000	3	-3.907	0.000	1
12	5:DL	3.000	0.457	0.000	4	-0.430	0.000	2
	6:DL+LL+SL	3.000	5.170	0.000	4	-4.922	0.000	2
	7:DL + WL	3.000	2.484	3.000	1	-2.741	3.000	3
	8:DL + 0.75(LL)	3.000	5.279	0.000	3	-5.300	0.000	1
13	5:DL	3.000	0.514	3.000	4	-0.491	3.000	2
	6:DL+LL+SL	3.000	5.235	3.000	4	-4.991	3.000	2
	7:DL + WL	3.000	3.272	0.000	3	-2.965	0.000	1
	8:DL + 0.75(LL)	3.000	4.280	0.000	3	-3.877	0.000	1
14	5:DL	3.000	0.457	0.000	4	-0.436	0.000	2
	6:DL+LL+SL	3.000	5.176	0.000	4	-4.934	0.000	2
	7:DL + WL	3.000	2.231	3.000	1	-2.462	3.000	3
	8:DL + 0.75(LL)	3.000	5.251	0.000	3	-5.254	0.000	1
15	5:DL	3.000	0.444	3.000	4	-0.420	3.000	2
	6:DL+LL+SL	3.000	5.171	3.000	4	-4.925	3.000	2
	7:DL + WL	3.000	2.942	0.000	3	-2.666	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
16	8:DL + 0.75(LL)	3.000	4.040	0.000	3	-3.660	0.000	1
	5:DL	2.500	0.112	2.500	2	-0.172	0.000	1
	6:DL+LL+SL	2.500	1.192	2.500	2	-1.784	0.000	1
	7:DL + WL	2.500	1.521	0.000	1	-1.803	2.500	1
	8:DL + 0.75(LL)	2.500	1.277	2.500	2	-2.601	2.500	1
17	5:DL	2.500	0.307	0.000	2	-0.454	2.500	1
	6:DL+LL+SL	2.500	1.400	0.000	2	-2.043	2.500	1
	7:DL + WL	2.500	1.509	0.000	1	-1.823	2.500	1
	8:DL + 0.75(LL)	2.500	1.354	2.500	2	-2.672	2.500	1
18	5:DL	2.500	0.272	2.500	2	-0.518	0.000	1
	6:DL+LL+SL	2.500	1.337	2.500	2	-2.142	0.000	1
	7:DL + WL	2.500	1.291	2.500	2	-1.283	2.500	3
	8:DL + 0.75(LL)	2.500	1.835	2.500	2	-1.929	2.500	1
19	5:DL	2.650	0.335	0.000	2	-0.635	0.000	1
	6:DL+LL+SL	2.650	0.229	0.000	2	-0.785	0.000	1
	7:DL + WL	2.650	1.239	1.325	1	-2.340	0.000	1
	8:DL + 0.75(LL)	2.650	0.937	1.325	1	-2.026	0.000	1
20	5:DL	2.650	1.068	0.000	2	-1.970	0.000	1
	6:DL+LL+SL	2.650	1.114	0.000	2	-1.904	0.000	1
	7:DL + WL	2.650	1.513	1.325	1	-3.572	0.000	1
	8:DL + 0.75(LL)	2.650	1.310	1.325	1	-3.122	0.000	1
21	5:DL	2.650	1.850	1.325	1	-2.665	2.650	1
	6:DL+LL+SL	2.650	1.837	1.325	1	-2.840	2.650	1
	7:DL + WL	2.650	2.772	1.325	1	-4.782	2.650	1
	8:DL + 0.75(LL)	2.650	2.532	1.325	1	-4.384	2.650	1
22	5:DL	2.650	1.082	2.650	2	-1.967	2.650	1
	6:DL+LL+SL	2.650	1.007	2.650	2	-2.119	2.650	1
	7:DL + WL	2.650	1.292	1.325	1	-3.898	2.650	1
	8:DL + 0.75(LL)	2.650	1.083	1.325	1	-3.529	2.650	1
23	5:DL	2.650	0.376	2.650	2	-0.790	2.650	1
	6:DL+LL+SL	2.650	0.318	2.650	2	-0.847	2.650	1
	7:DL + WL	2.650	1.300	1.325	1	-2.442	2.650	1
	8:DL + 0.75(LL)	2.650	0.997	1.546	1	-2.072	2.650	1
24	5:DL	2.650	0.348	0.000	2	-0.613	0.000	1
	6:DL+LL+SL	2.650	0.423	0.000	2	-0.422	0.000	1
	7:DL + WL	2.650	0.749	1.325	2	-0.698	1.325	3
	8:DL + 0.75(LL)	2.650	0.561	1.325	2	-0.634	2.650	1
25	5:DL	2.650	1.062	0.000	2	-2.009	0.000	1
	6:DL+LL+SL	2.650	1.019	0.000	2	-2.088	0.000	1
	7:DL + WL	2.650	0.666	1.546	1	-1.564	0.000	1
	8:DL + 0.75(LL)	2.650	0.596	0.000	2	-1.734	0.000	1
26	5:DL	2.650	1.903	1.325	1	-2.597	2.650	1
	6:DL+LL+SL	2.650	1.916	1.325	1	-2.747	0.000	1
	7:DL + WL	2.650	1.866	1.325	1	-2.557	2.650	1
	8:DL + 0.75(LL)	2.650	1.885	1.325	1	-2.431	2.650	1
27	5:DL	2.650	1.085	2.650	2	-1.978	2.650	1



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			Stress (ksi)	d (ft)	Corner	Stress (ksi)	d (ft)	Corner
	6:DL+LL+SL	2.650	1.161	2.650	2	-1.831	2.650	1
	7:DL + WL	2.650	0.526	1.767	2	-1.774	2.650	1
	8:DL + 0.75(LL	2.650	0.570	2.650	2	-1.714	2.650	1
28	5:DL	2.650	0.389	2.650	2	-0.775	2.650	1
	6:DL+LL+SL	2.650	0.419	2.650	2	-0.680	2.650	1
	7:DL + WL	2.650	0.802	0.000	3	-1.096	0.000	1
	8:DL + 0.75(LL	2.650	0.567	0.000	3	-0.812	0.000	1
29	5:DL	1.000	0.433	0.000	2	-0.237	0.000	4
	6:DL+LL+SL	1.000	1.412	0.000	2	-0.255	0.000	4
	7:DL + WL	1.000	5.945	0.000	3	-6.414	0.000	1
	8:DL + 0.75(LL	1.000	5.046	0.000	3	-4.628	0.000	1
30	5:DL	1.000	0.189	0.000	1	-0.140	0.000	3
	6:DL+LL+SL	1.000	2.205	0.000	4	-1.707	0.000	2
	7:DL + WL	1.000	2.626	0.000	3	-2.692	0.000	1
	8:DL + 0.75(LL	1.000	0.777	0.000	3	-0.477	0.000	1
31	5:DL	1.000	0.389	0.000	1	-0.302	0.000	3
	6:DL+LL+SL	1.000	4.397	0.000	1	-3.412	0.000	3
	7:DL + WL	1.000	3.741	0.000	3	-3.830	0.000	1
	8:DL + 0.75(LL	1.000	0.398	0.000	3			
32	5:DL	1.000	0.483	0.000	1	-0.393	0.000	3
	6:DL+LL+SL	1.000	4.487	0.000	1	-3.500	0.000	3
	7:DL + WL	1.000	4.106	0.000	3	-4.211	0.000	1
	8:DL + 0.75(LL	1.000	0.651	0.000	3	-0.034	0.000	1
33	5:DL	1.000	0.544	0.000	4	-0.448	0.000	2
	6:DL+LL+SL	1.000	4.551	0.000	1	-3.558	0.000	3
	7:DL + WL	1.000	4.178	0.000	3	-4.283	0.000	1
	8:DL + 0.75(LL	1.000	0.686	0.000	3	-0.067	0.000	1
34	5:DL	1.000	0.380	0.000	4	-0.294	0.000	2
	6:DL+LL+SL	1.000	4.391	0.000	4	-3.407	0.000	2
	7:DL + WL	1.000	4.038	0.000	2	-4.138	0.000	4
	8:DL + 0.75(LL	1.000	0.620	0.000	2	-0.000	0.000	4
35	5:DL	1.000	0.179	0.000	4	-0.132	0.000	2
	6:DL+LL+SL	1.000	2.188	0.000	4	-1.692	0.000	2
	7:DL + WL	1.000	2.809	0.000	2	-2.887	0.000	4
	8:DL + 0.75(LL	1.000	0.904	0.000	2	-0.614	0.000	4
36	5:DL	1.000	0.242	0.000	3	-0.094	0.000	1
	6:DL+LL+SL	1.000	1.098	0.000	3			
	7:DL + WL	1.000	5.649	0.000	2	-6.102	0.000	4
	8:DL + 0.75(LL	1.000	4.895	0.000	2	-4.479	0.000	4
37	5:DL	1.000	0.856	0.000	3			
	6:DL+LL+SL	1.000	2.519	0.000	3			
	7:DL + WL	1.000	7.779	0.000	3	-7.941	0.000	1
	8:DL + 0.75(LL	1.000	7.295	0.000	3	-5.676	0.000	1
38	5:DL	1.000	2.224	0.000	3			
	6:DL+LL+SL	1.000	4.005	0.000	3			
	7:DL + WL	1.000	9.921	0.000	3	-8.486	0.000	1



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Date **14-May-01**

Chd **RS**

Client **ASP**

File **01S054-1.STD**

Date/Time **15-Oct-2002 15:07**

**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)	1.000	9.332	0.000	3	-6.119	0.000	1
39	5:DL	1.000	2.483	0.000	1			
	6:DL+LL+SL	1.000	3.816	0.000	2			
	7:DL + WL	1.000	9.848	0.000	2	-8.163	0.000	4
	8:DL + 0.75(LL)	1.000	9.165	0.000	2	-5.704	0.000	4
40	5:DL	1.000	0.765	0.000	2			
	6:DL+LL+SL	1.000	2.485	0.000	3			
	7:DL + WL	1.000	7.315	0.000	2	-7.422	0.000	4
	8:DL + 0.75(LL)	1.000	6.927	0.000	2	-5.255	0.000	4
41	5:DL	1.000	0.370	0.000	2	-0.167	0.000	4
	6:DL+LL+SL	1.000	1.125	0.000	1			
	7:DL + WL	1.000	6.661	0.000	2	-5.836	0.000	4
	8:DL + 0.75(LL)	1.000	5.126	0.000	2	-3.736	0.000	4
42	5:DL	1.000	0.696	0.000	1			
	6:DL+LL+SL	1.000	2.482	0.000	1			
	7:DL + WL	1.000	8.668	0.000	3	-5.926	0.000	1
	8:DL + 0.75(LL)	1.000	6.745	0.000	3	-2.931	0.000	1
43	5:DL	1.000	2.521	0.000	1			
	6:DL+LL+SL	1.000	4.258	0.000	1			
	7:DL + WL	1.000	10.972	0.000	2	-6.651	0.000	4
	8:DL + 0.75(LL)	1.000	8.940	0.000	2	-3.509	0.000	4
44	5:DL	1.000	2.294	0.000	4			
	6:DL+LL+SL	1.000	3.945	0.000	4			
	7:DL + WL	1.000	11.438	0.000	3	-7.290	0.000	1
	8:DL + 0.75(LL)	1.000	9.206	0.000	3	-3.955	0.000	1
45	5:DL	1.000	0.791	0.000	4			
	6:DL+LL+SL	1.000	2.580	0.000	4			
	7:DL + WL	1.000	9.135	0.000	3	-6.438	0.000	1
	8:DL + 0.75(LL)	1.000	7.262	0.000	3	-3.501	0.000	1
46	5:DL	1.000	0.201	0.000	3	-0.052	0.000	1
	6:DL+LL+SL	1.000	1.056	0.000	4			
	7:DL + WL	1.000	5.929	0.000	3	-5.241	0.000	1
	8:DL + 0.75(LL)	1.000	4.618	0.000	3	-3.341	0.000	1
47	5:DL	1.000	0.263	0.000	3	-0.212	0.000	1
	6:DL+LL+SL	1.000	2.269	0.000	3	-1.770	0.000	1
	7:DL + WL	1.000	3.423	0.000	3	-3.243	0.000	1
	8:DL + 0.75(LL)	1.000	4.138	0.000	3	-3.653	0.000	1
48	5:DL	1.000	0.452	0.000	3	-0.362	0.000	1
	6:DL+LL+SL	1.000	4.474	0.000	3	-3.487	0.000	1
	7:DL + WL	1.000	4.946	0.000	3	-4.671	0.000	1
	8:DL + 0.75(LL)	1.000	6.840	0.000	3	-5.937	0.000	1
49	5:DL	1.000	0.409	0.000	3	-0.324	0.000	1
	6:DL+LL+SL	1.000	4.384	0.000	3	-3.401	0.000	1
	7:DL + WL	1.000	5.195	0.000	3	-4.910	0.000	1
	8:DL + 0.75(LL)	1.000	6.979	0.000	3	-6.072	0.000	1
50	5:DL	1.000	0.474	0.000	2	-0.384	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
	6:DL+LL+SL	1.000	4.478	0.000	2	-3.490	0.000	4
	7:DL + WL	1.000	5.175	0.000	2	-4.890	0.000	4
	8:DL + 0.75(LL)	1.000	7.003	0.000	2	-6.093	0.000	4
51	5:DL	1.000	0.436	0.000	2	-0.346	0.000	4
	6:DL+LL+SL	1.000	4.456	0.000	2	-3.469	0.000	4
	7:DL + WL	1.000	4.632	0.000	2	-4.368	0.000	4
	8:DL + 0.75(LL)	1.000	6.598	0.000	2	-5.705	0.000	4
52	5:DL	1.000	0.266	0.000	2	-0.216	0.000	4
	6:DL+LL+SL	1.000	2.261	0.000	3	-1.761	0.000	1
	7:DL + WL	1.000	3.146	0.000	2	-2.987	0.000	4
	8:DL + 0.75(LL)	1.000	3.913	0.000	2	-3.445	0.000	4

**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	35	7:DL + WL	<b>0.025</b>	0.609	0.228	0.000	0.000	0.000
Min FX	34	6:DL+LL+SL	<b>-0.025</b>	1.700	0.021	0.000	0.000	0.000
Max FY	39	8:DL + 0.75(LL)	0.023	<b>1.959</b>	0.152	0.000	0.000	0.000
Min FY	25	7:DL + WL	-0.021	<b>-0.167</b>	0.153	0.000	0.000	0.000
Max FZ	34	7:DL + WL	-0.016	0.519	<b>0.242</b>	0.000	0.000	0.000
Min FZ	29	6:DL+LL+SL	0.000	0.360	<b>-0.114</b>	0.000	0.000	0.000
Max MX	25	5:DL	0.006	0.073	0.003	<b>0.000</b>	0.000	0.000
Min MX	25	5:DL	0.006	0.073	0.003	<b>0.000</b>	0.000	0.000
Max MY	25	5:DL	0.006	0.073	0.003	0.000	<b>0.000</b>	0.000
Min MY	25	5:DL	0.006	0.073	0.003	0.000	<b>0.000</b>	0.000
Max MZ	25	5:DL	0.006	0.073	0.003	0.000	0.000	<b>0.000</b>
Min MZ	25	5:DL	0.006	0.073	0.003	0.000	0.000	<b>0.000</b>



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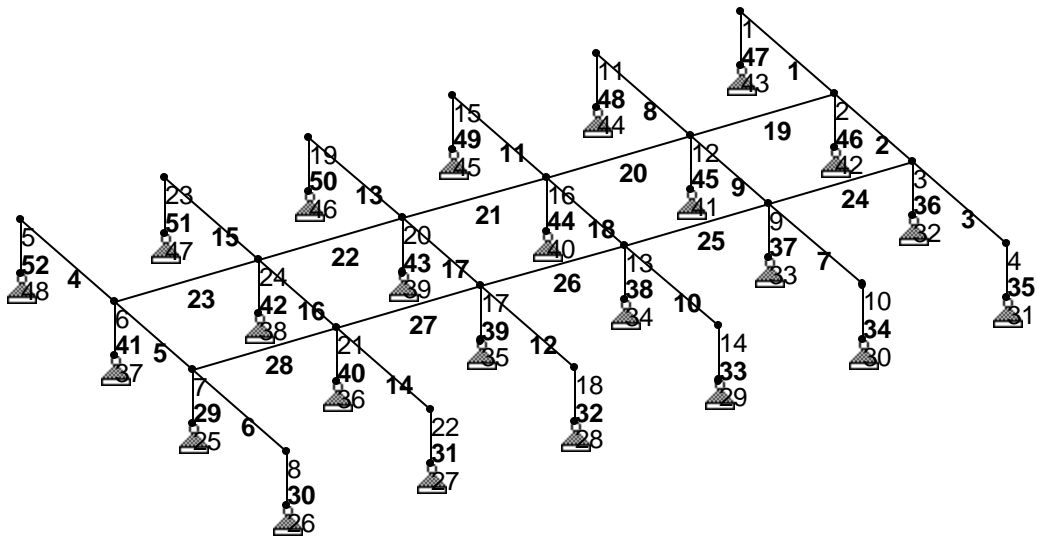
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Client ASP

File 01S054-1.STD

Date/Time 15-Oct-2002 15:07



Whole Structure



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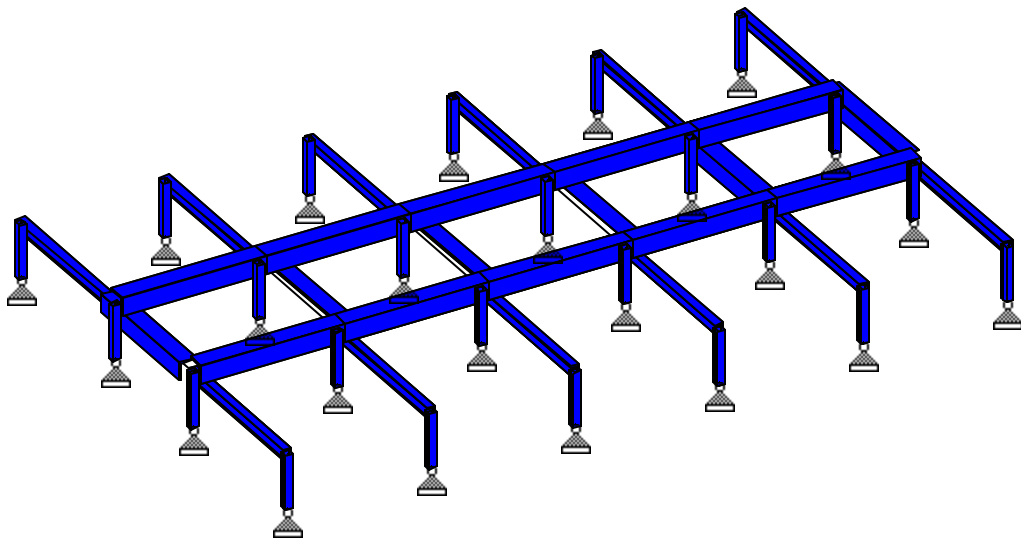
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3-d



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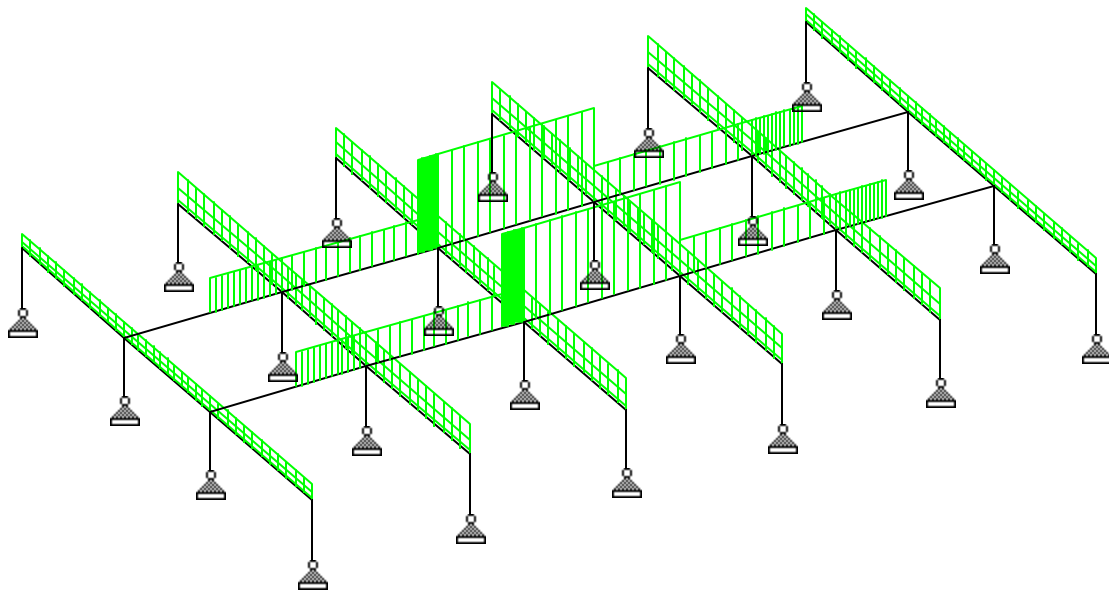
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Chd **RS**

Client **ASP**

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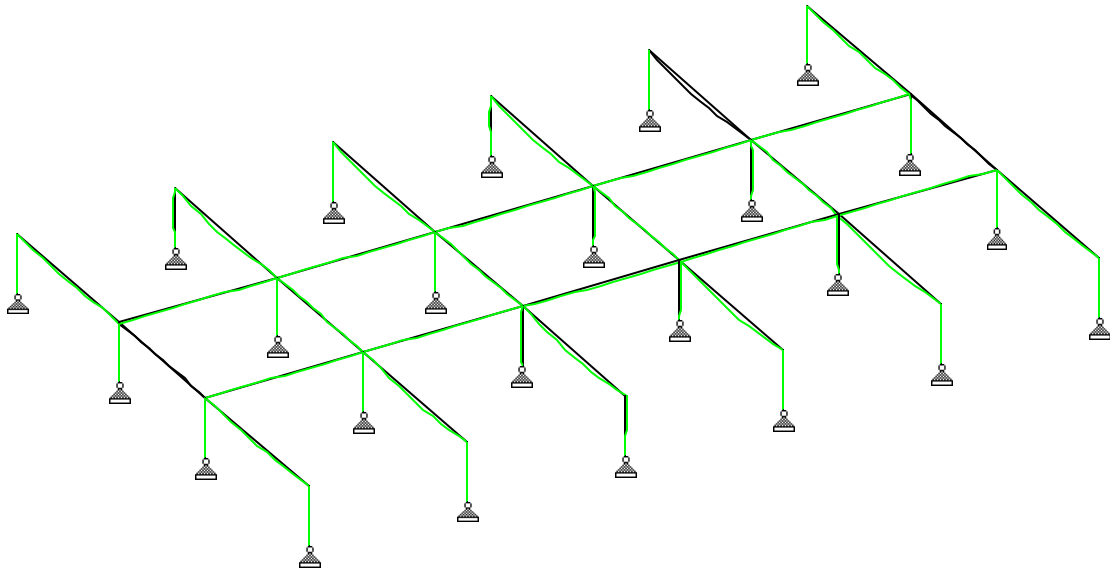
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Whole Structure Displacements 0.1in:1ft 6 DL+LL+SL



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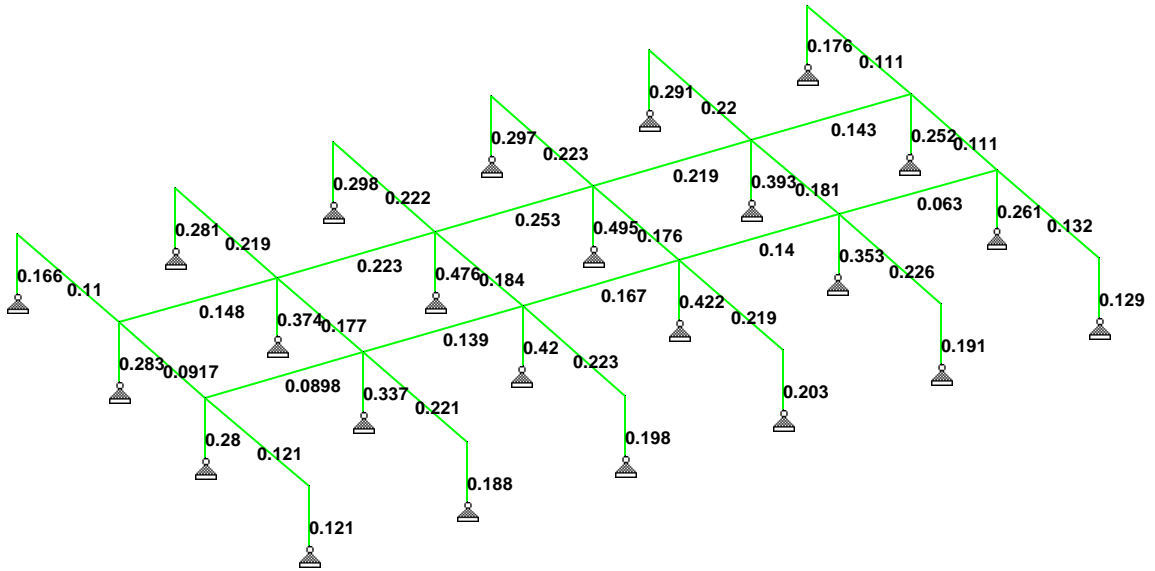
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Whole Structure