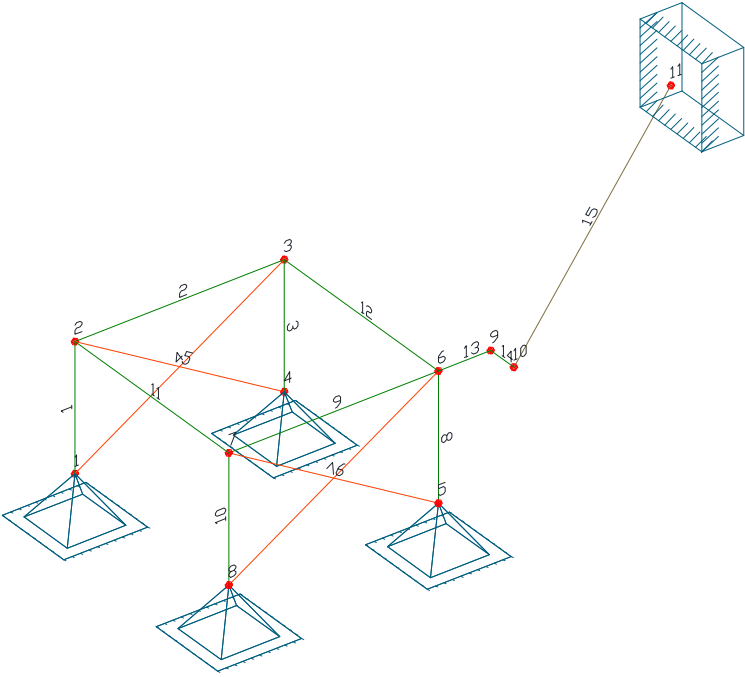


Frame Static Analysis Report

Project:: Lesson2 (c:\dcc\Fram2012\projects\L2_Done)
Description: Complete Lesson 2
Date: 06/09/2011 10:57 AM

Company:
User:
Software: Digital Canal Frame Analysis & Design



N O D A L C O O R D I N A T E S					B O U N D A R Y C O N D I T I O N S (F=FIX, S=SUP, M=MASTER/SLAVE)						
NODE NO	REBAND NO	X	Y	Z	NODE TEMP	ALPHA	BETA	GAMMA	DIR	DDDDOO XYZXYZ	STIFFNESS
Units:		Ft	Ft	Ft	F	Deg	Deg	Deg			K /In /Deg
1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00		FFF...	
2	2	0.00	12.00	0.00	0.00	0.00	0.00	0.00			
3	3	20.00	12.00	0.00	0.00	0.00	0.00	0.00			
4	4	20.00	0.00	0.00	0.00	0.00	0.00	0.00		FFF...	
5	5	20.00	0.00	20.00	0.00	0.00	0.00	0.00		FFF...	
6	6	20.00	12.00	20.00	0.00	0.00	0.00	0.00			
7	7	0.00	12.00	20.00	0.00	0.00	0.00	0.00			
8	8	0.00	0.00	20.00	0.00	0.00	0.00	0.00		FFF...	
9	9	25.00	12.00	20.00	0.00	0.00	0.00	0.00			
10	10	25.00	12.00	23.00	0.00	0.00	0.00	0.00			
11	11	40.00	32.00	23.00	0.00	0.00	0.00	0.00		FFFFFF	

2 N O D E P R I S M A T I C B E A M E L E M E N T														
ELEM NO	NE NO	PE NO	ALPHA	BETA	GAMMA	LENGTH	MAT TYPE	PROP TYPE	RELEASE NE	REF TEMP	DIR	NE	OFFSET PE	STIFFNESS NE PE
Units:			Deg	Deg	Deg	Ft				F		Ft	Ft	K /In /Deg K /In /Deg
1	1	2	90.00	-90.00	0.00	12.00	1	1						
2	2	3	90.00	-0.00	0.00	20.00	1	2						
3	3	4	90.00	90.00	0.00	12.00	1	1						
8	6	5	90.00	90.00	0.00	12.00	1	1						
9	7	6	90.00	-0.00	0.00	20.00	1	2						
10	8	7	90.00	-90.00	0.00	12.00	1	1						
11	2	7	0.00	-0.00	0.00	20.00	1	2						
12	3	6	0.00	-0.00	0.00	20.00	1	2						
13	6	9	90.00	-0.00	0.00	5.00	1	2						
14	9	10	0.00	-0.00	0.00	3.00	1	2						

2 N O D E T E N S I O N - O N L Y S T R U T E L E M E N T															
ELEM NO	NE NO	PE NO	ALPHA	BETA	GAMMA	LENGTH	MAT TYPE	PROP TYPE	REF TEMP	DX	DY	CONNECTION DZ	OFFSETS DX	DY	DZ
Units:			Deg	Deg	Deg	Ft			Ft	F	Ft	Ft	Ft	Ft	Ft
4	1	3	90.00	-30.96	0.00	23.32	1	3							
5	2	4	90.00	30.96	0.00	23.32	1	3							
6	7	5	90.00	30.96	0.00	23.32	1	3							
7	8	6	90.00	-30.96	0.00	23.32	1	3							

2 N O D E C A B L E E L E M E N T																
ELEM NO	NE NO	PE NO	ALPHA	BETA	CHORD LENGTH	MAT TYPE	PROP TYPE	TEN	LU	REF TEMP	DX	DY	CONNECTION DZ	OFFSETS DX	DY	DZ
Units:			Deg	Deg	Ft			K	Ft	F	Ft	Ft	Ft	Ft	Ft	Ft
15	10	11	90.00	-53.13	25.00	1	4	1.00	0.00							

MATL NO	DESIGNATION	MATERIAL PROPERTIES				
		YOUNG'S MODULUS	POISSON'S RATIO	THERMAL COEFF	MASS DENSITY	WEIGHT DENSITY
Units:		K /In ^2		F	Slug/Ft^3	Lb/Ft ^3
1	Steel	2.9e+004	0.295	6.5e-006	15.2	490

PROP	DESIGNATION	2 NODE PRISMATIC BEAM ELEMENT PROPERTIES							
		A	IXX	IYY	J	IXY	SFY	SFX	CW
Units:		In^2	In^4	In^4	In^4	In^4			In^6
1	W12x40	11.8	310	44.1	0.95	0	3.350	1.431	1.44e+003
2	W18x50	14.7	800	40.1	1.24	0	2.302	1.720	3.04e+003

PROP	DESIGNATION	2 NODE STRUT ELEMENT PROPERTIES	
		A	
Units:		In^2	
3	SC1	0.785	

PROP	DESIGNATION	2 NODE CABLE ELEMENT PROPERTIES	
		A	Diameter
Units:		In^2	In
4	CB1	0.78	1.000

REC NO	LOAD TYPE	LOAD SYS	DIST SPEC	2 NODE PRISMATIC BEAM ELEMENT LOAD INFORMATION						
				DIST	PX	PY	PZ	MX	MY	MZ
Units:				Ft	K	K	K	Ft-K	Ft-K	Ft-K
DESCRIPTION :										
LOAD CASES : 1										
ELEMENT LIST : 2,9										
1	LINR	GLO	FRAC	B	0.000	0.000	-2.500	0.000	0.000	0.000
				E	1.000	0.000	-2.500	0.000	0.000	0.000

REC NO	GRAVITY LOAD MULTIPLIERS		
	PX	PY	PZ
DESCRIPTION : Self Weight			
LOAD CASES : 1			
ELEMENT LIST : 1-15			
1	0.000	-1.000	0.000

NO	ALPHA	BETA	GAMMA	PX	PY	PZ	MX	MY	MZ
Units:	Deg	Deg	Deg	K	K	K	Ft-K	Ft-K	Ft-K

REC NO	ALPHA	BETA	GAMMA	PX	N O D A L L O A D S			MX	MY	MZ
					PY	PZ				

DESCRIPTION :
 LOAD CASES : 2
 NODE LIST : 2,7

1	0.00	0.00	0.00	8.000	0.000	0.000	0.000	0.000	0.000
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DESCRIPTION :
 LOAD CASES : 1
 NODE LIST : 10

2	0.00	0.00	0.00	0.000	-10.000	0.000	0.000	0.000	0.000
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S T R U C T U R E L O A D C O M B I N A T I O N S

COMB LIST OF FACTORS * CASES

DESCRIPTION : Comb1
 1 1.400*1

DESCRIPTION : Comb2
 2 1.200*1,1.300*2

P-D E L T A A N A L Y S I S R E S U L T S

LOAD COMB	CONVERGE	CYCLE	D-NORM	F-NORM	CONVERGE-TOL	MAX CYCLE	AXIAL FORCE	MIN STIFFNESS	POWER
1	YES	6	2.1262e-005	6.9325e-005	1.0000e-003	30	N	0.0000e+000	0.0000e+000
2	YES	5	6.5099e-005	2.9237e-004	1.0000e-003	30	N	0.0000e+000	0.0000e+000

S T R U C T U R E L O A D C O M B I N A T I O N S

COMB LIST OF FACTORS * CASES

LOAD COMBINATIONS:

COMB 1 (Comb1) : 1.40 X CASE 1

COMB 2 (Comb2) : 1.20 X CASE 1 + 1.30 X CASE 2

NODE NO	LOAD COMB	N O D A L D I S P L A C E M E N T S					
		DX	DY	DZ	OX	OY	OZ
		(* Indicates Displacements Occur in Nodal Local System)					
Units:		In	In	In	Deg	Deg	Deg
1	1	0.0000	0.0000	0.0000	0.1291	0.1463	0.1096
	2	0.0000	0.0000	0.0000	0.1086	0.1241	0.0063
2	1	-0.0197	-0.0157	0.2260	0.0111	0.1468	-0.2165
	2	0.1481	-0.0129	0.1899	0.0096	0.1244	-0.2028
3	1	-0.0232	-0.0155	-0.1814	0.0007	-0.0885	0.2209
	2	0.1402	-0.0159	-0.1599	0.0002	-0.0777	0.1731
4	1	0.0000	0.0000	0.0000	-0.1084	-0.0889	-0.0863
	2	0.0000	0.0000	0.0000	-0.0955	-0.0780	-0.1591
5	1	0.0000	0.0000	0.0000	-0.1074	0.6212	-0.1757
	2	0.0000	0.0000	0.0000	-0.0943	0.5300	-0.2269
6	1	0.1531	-0.0193	-0.1817	0.0003	0.6215	0.1905
	2	0.2754	-0.0194	-0.1601	0.0009	0.5303	0.1479
7	1	0.1555	-0.0152	0.2262	-0.0034	-0.0887	-0.2309
	2	0.2828	-0.0128	0.1901	-0.0029	-0.0773	-0.2134
8	1	0.0000	0.0000	0.0000	0.1364	-0.0892	0.0143
	2	0.0000	0.0000	0.0000	0.1145	-0.0777	-0.0671
9	1	0.1430	0.1738	-1.3355	2.1713	1.5969	0.1424
	2	0.2683	0.1296	-1.1451	1.9887	1.3614	0.1093
10	1	1.2770	-1.1884	-1.3792	2.1740	1.8943	0.1536
	2	1.2344	-1.1190	-1.1797	1.9910	1.6142	0.1180
11	1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

2 N O D E P R I S M A T I C B E A M E L E M E N T -- E L E M E N T R E P O R T S

ELEM NO	LOAD COMB	NODE NO	SIGN CONVENTION : BEAM DESIGNERS									
			AXIAL	TORSION	SHEAR X	MOMENT Y	MAX MOM/DEFL	DIST	SHEAR Y	MOMENT X	MAX MOM/DEFL	DIST
Units:			K	K -Ft	K	K -Ft	K -Ft / In	Ft	K	K -Ft	K -Ft / In	Ft

REPORT TYPE : Max Forces Full

ELEMENT LIST : 1-3,8-14

1	1	1	-37.3356	0.0000	0.2545	0.0000			-4.9348	0.0000		
		2	-36.6610	0.0000	0.2535	3.0479	-0.0380	6.92	-4.9347	-59.2168	0.1051	6.93

2 NODE PRISMATIC BEAM ELEMENT -- ELEMENT REPORTS												
ELEM NO	LOAD COMB	NODE NO	SIGN CONVENTION : BEAM DESIGNERS									
			AXIAL	TORSION	SHEAR X	MOMENT Y	MAX MOM/DEFL	DIST	SHEAR Y	MOMENT X	MAX MOM/DEFL	DIST
	2	1	-30.4269	0.0000	0.2133	-0.0000					0.0003	
		2	-29.8487	0.0000	0.2125	2.5546	-0.0319	6.92	-3.1655	-37.9822	0.0674	6.93
2	1	2	-5.6017	0.0014	-0.2873	1.2145			35.8712	-59.2171	120.9976	10.05
		3	-5.6016	0.0014	-0.2873	-4.5321	0.1322	12.39	-35.5293	-55.7982	-0.3698	10.02
	2	2	-13.6320	0.0012	-0.2536	1.1113			29.4827	-37.9820	104.0481	9.63
		3	-13.6327	0.0012	-0.2536	-3.9609	0.1140	12.44	-31.7177	-60.3318	-0.3175	9.82
3	1	3	-36.3174	-0.0000	0.2343	-2.8164			4.6494	-55.7923		
		4	-36.9919	-0.0000	0.2351	-0.0000	0.0351	5.07	4.6493	0.0001	0.0991	5.07
	2	3	-37.0697	0.0000	0.2056	-2.4711			5.0270	-60.3272		
		4	-37.6479	0.0000	0.2062	0.0000	0.0308	5.07	5.0275	-0.0001	0.1071	5.07
8	1	6	-45.0161	-0.0000	0.2314	-2.7817			5.5420	-66.5082		
		5	-45.6906	-0.0000	0.2322	-0.0000	0.0347	5.07	5.5427	-0.0003	0.1181	5.07
	2	6	-44.9538	0.0000	0.2046	-2.4592			5.6713	-68.0623		
		5	-45.5320	0.0000	0.2053	-0.0000	0.0307	5.07	5.6724	0.0004	0.1208	5.07
9	1	7	-3.6964	-0.0004	0.7129	-2.1239			34.1793	-44.5421	119.0739	9.57
		6	-3.6976	-0.0004	0.7129	12.1345	-0.3909	12.07	-37.2211	-74.9604	-0.3616	9.79
	2	7	-12.6357	-0.0004	0.6026	-1.7442			28.1376	-26.5767	102.7896	9.20
		6	-12.6374	-0.0004	0.6026	10.3082	-0.3341	12.05	-33.0628	-75.8280	-0.3104	9.60
10	1	8	-35.9254	0.0000	0.3013	-0.0000			-3.7111	-0.0000		
		7	-35.2508	0.0000	0.3003	3.6096	-0.0450	6.92	-3.7118	-44.5377	0.0791	6.93
	2	8	-29.6317	0.0000	0.2528	-0.0000			-2.2139	-0.0002		
		7	-29.0535	0.0000	0.2521	3.0295	-0.0378	6.92	-2.2150	-26.5735	0.0472	6.93
11	1	2	0.4744	0.0018	-0.0538	-1.1219			0.3763	2.9459	3.9568	5.37
		7	0.4744	0.0018	-0.0538	-2.1978	0.1237	10.54	-1.0243	-3.5342	-0.0107	8.43
	2	2	0.4071	0.0013	-0.0363	-1.0588			0.3258	2.4982	3.3823	5.43
		7	0.4071	0.0013	-0.0363	-1.7851	0.1058	10.42	-0.8747	-2.9912	-0.0092	8.45
12	1	3	-0.4670	0.0038	0.9465	-4.4612			0.7440	-2.7203	1.2316	10.62
		6	-0.4670	0.0038	0.9465	14.4697	-0.4035	12.54	-0.6566	-1.8466	-0.0030	10.59
	2	3	-0.4039	0.0032	0.8181	-3.8965			0.6287	-2.3822	0.9105	10.47
		6	-0.4040	0.0032	0.8181	12.4661	-0.3460	12.56	-0.5718	-1.8128	-0.0020	10.52
13	1	6	9.3178	-4.7491	0.2513	26.6703			2.0489	-8.3677		
		9	9.3190	-4.7491	0.2513	27.9268	-0.1268	2.51	1.6988	1.0016	0.0008	2.00
	2	6	7.9218	-4.3462	0.1824	22.8347			1.8467	-7.7006		
		9	7.9226	-4.3462	0.1824	23.7467	-0.1082	2.51	1.5466	0.7828	0.0008	2.02
14	1	9	0.4279	0.0000	-9.3197	27.9592			1.6594	-4.6634		
		10	0.4200	0.0000	-9.3198	-0.0001	-0.0240	1.27	1.4495	-0.0001	0.0002	1.26
	2	9	0.3187	0.0000	-7.9232	23.7697			1.5200	-4.2902		
		10	0.3125	0.0000	-7.9233	0.0000	-0.0204	1.27	1.3400	-0.0002	0.0002	1.26

2 NODE STRUT ELEMENT -- ELEMENT REPORTS

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR X	MAX MOMENT Y	DIST	SHEAR Y	MAX MOMENT X	DIST
Units:			K	K	K -Ft	Ft	K	K -Ft	Ft
REPORT TYPE : Max Forces Full									
ELEMENT LIST : 4-7									
4	1	1	-0.0224	-0.0000			0.0374	0.2182	11.66
		3	0.0224	0.0000			-0.0374		
	2	1	9.1027	-0.0000			0.0321	0.1871	11.66
		3	9.1412	0.0000			-0.0321		
5	1	2	0.7435	0.0000			0.0374	0.2182	11.66
		4	0.6986	-0.0000			-0.0374		
	2	2	0.0192	0.0000			0.0321	0.1869	11.66
		4	-0.0192	-0.0000			-0.0321		
6	1	7	0.0225	0.0000			0.0374	0.2181	11.66
		5	-0.0225	-0.0000			-0.0374		
	2	7	0.0193	0.0000			0.0321	0.1869	11.66
		5	-0.0193	-0.0000			-0.0321		
7	1	8	9.8603	-0.0000			0.0374	0.2183	11.66
		6	9.9052	0.0000			-0.0374		
	2	8	18.3966	-0.0000			0.0321	0.1871	11.67
		6	18.4351	0.0000			-0.0321		

2 NODE CABLE ELEMENT -- ELEMENT REPORTS

COORDINATE SYSTEM : GLOBAL

ELEM NO	LOAD COMB	NODE NO	FORCE X	FORCE Y	FORCE Z	TENSION
Units:						
			K	K	K	K
REPORT TYPE : Max Forces Full						
ELEMENT LIST : 15						
15	1	10	-9.3276	-12.5412	-0.0720	15.6298
		11	9.3276	12.6341	0.0720	15.7045
	2	10	-7.9282	-10.6537	-0.0523	13.2801
		11	7.9282	10.7333	0.0523	13.3440

R E A C T I O N S

(* Indicates Reactions Occur in Nodal Local System)

NODE NO	LOAD COMB	PX	PY	PZ	MX	MY	MZ
Units:							
		K	K	K	K -Ft	K -Ft	K -Ft
1	1	4.9297	37.3802	-0.1959	-0.0000	-0.0000	-0.0000
	2	-4.6272	25.7705	-0.1680	-0.0000	-0.0000	-0.0000
4	1	-4.0369	36.6642	0.1879	-0.0000	-0.0000	-0.0000
	2	-4.9909	37.6904	0.1644	-0.0000	-0.0000	-0.0000
5	1	-5.4941	45.7404	0.1746	-0.0000	-0.0000	-0.0000
	2	-5.5853	45.5804	0.1546	-0.0000	-0.0000	-0.0000

R E A C T I O N S							
(* Indicates Reactions Occur in Nodal Local System)							
NODE NO	LOAD COMB	PX	PY	PZ	MX	MY	MZ
8	1	-4.7262	30.8837	-0.2385	-0.0000	-0.0000	-0.0000
	2	-13.5248	20.1991	-0.2032	-0.0000	-0.0000	-0.0000
11	1	9.3276	12.6341	0.0720	-0.0000	-0.0000	-0.0000
	2	7.9282	10.7333	0.0523	-0.0000	-0.0000	-0.0000

R E A C T I O N S U M M A R Y							
LOAD COMB	S U M O F A P P L I E D L O A D S			S U M O F R E A C T I O N S			
	PX	PY	PZ	PX	PY	PZ	
Units:	K	K	K	K	K	K	
1	0.0000	-163.3026	0.0000	0.0001	163.3026	0.0001	
2	20.8000	-139.9736	0.0000	-20.8000	139.9736	0.0002	