

**SUMMARY OF RDA RESULTS TO STEEL ELEMENTS - LEVEL 2**  
**ASCE 7 SECTION 12.8 - EQUIVALENT LATERAL FORCE PROCEDURE - RIGID DIAPHRAGM ANALYSIS**  
**SAMPLE PROJECT, ANYTOWN - NEW DESIGN**

Floor Level : 2

**1. General Design Parameters**

$H_A = 12.00$  feet (Height of Floor Level Above)  
 $H_B = 15.00$  feet (Height of Floor Level Below)

Story Shear - N-S Direction (Y) for Loading Direction = + (-/-)  
 LFRS System: SMRF  $V_S = 907$  kips (Story Shear)  
 $C_S = 0.071$  g's (Seismic Coefficient)

Story Shear - W-E Direction (X) for Loading Direction = + (-/-)  
 LFRS System: SMRF  $V_S = 907$  kips (Story Shear)  
 $C_S = 0.071$  g's (Seismic Coefficient)

Moment Frame Beams - N-S Direction (Y) Moment Frame Beams - W-E Direction (X)  
 WF Shape = W30X116 WF Shape = W30X108

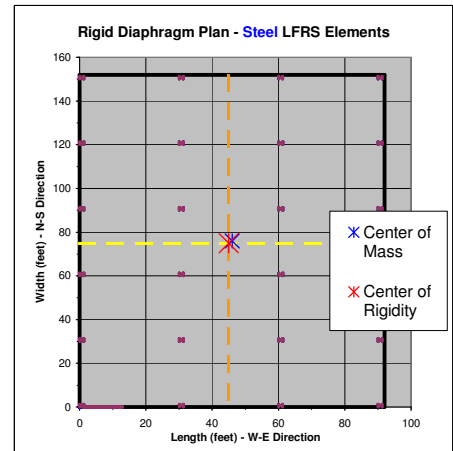
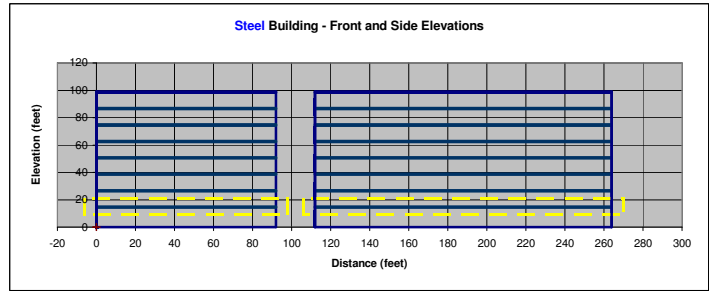
RC Diaphragm Dimensions						
Section	Length (feet)	Width (feet)	Thickness (inches)	x (feet)	y (feet)	Weight (kips)
1	92.00	152.00	9.00	-	-	1,521
2	0.00	0.00	0.00	0.00	0.00	0
3	0.00	0.00	0.00	0.00	0.00	0

for  $\rho = 145$  pcf (Unit Weight)

Accidental Eccentricity (ASCE (Section 12.8.4.2):

$e_{MIN} = 5.00$  % (accidental eccentricity)  
 $e_{AX} A_{XY} = 7.60$  feet for  $A_{XY} = 1.00$  (N-S Amplification of Accidental Torsional Moment)  
 $e_{AY} A_{XX} = 4.60$  feet  $A_{XX} = 1.00$  (W-E Amplification of Accidental Torsional Moment)

Material Data:  $E_m = 29,000$  ksi



**2. RDA Load Distribution to Steel Elements - Summary of Results**

LFRS Direction	Steel Element ID	H (feet)	Steel Element Dimensions and Data									$V_c$ (kips)	Deformation		Axial Forces from Overturning		
			Braced Frame	AISC Shape	LFRS Option Data		Coordinates <sup>1</sup>		Stiffness		Total Drift Ratio		$\delta_{ve}$ (inches)	$P_{WE}$ (Kips)	$P_{NS}$ (Kips)	$P_{OT}$ (Kips)	
					Strong / Weak Axis	L or d (feet)	t or $b_f$ (inches)	x (feet)	y (feet)	K (kip/in)							Relative Stiffness
N-S	1	15.00		W14X233	W	1.33	15.90	0.00	0.00	60	1.00	31.7	0.0032	0.657			
	2	15.00		W14X233	W	1.33	15.90	30.00	0.00	60	1.00	29.7	0.0030	0.616			
	3	15.00		W14X233	W	1.33	15.90	60.00	0.00	60	1.00	27.7	0.0028	0.575			
	4	15.00		W14X233	W	1.33	15.90	90.00	0.00	60	1.00	25.7	0.0026	0.534			
	5	15.00		W14X233	W	1.33	15.90	0.00	30.00	86	1.43	45.2	0.0032	0.714			
	6	15.00		W14X257	W	1.37	16.00	30.00	30.00	92	1.52	45.1	0.0030	0.661			
	7	15.00		W14X257	W	1.37	16.00	60.00	30.00	92	1.52	42.1	0.0028	0.616			
	8	15.00		W14X233	W	1.33	15.90	90.00	30.00	86	1.43	36.7	0.0026	0.580			
	9	15.00		W14X233	W	1.33	15.90	0.00	60.00	86	1.43	45.2	0.0032	0.714			
	10	15.00		W14X257	W	1.37	16.00	30.00	60.00	92	1.52	45.1	0.0030	0.661			
	11	15.00		W14X257	W	1.37	16.00	60.00	60.00	92	1.52	42.1	0.0028	0.616			
	12	15.00		W14X233	W	1.33	15.90	90.00	60.00	86	1.43	36.7	0.0026	0.580			
	13	15.00		W14X233	W	1.33	15.90	0.00	90.00	86	1.43	45.2	0.0032	0.714			
	14	15.00		W14X257	W	1.37	16.00	30.00	90.00	92	1.52	45.1	0.0030	0.661			
	15	15.00		W14X257	W	1.37	16.00	60.00	90.00	92	1.52	42.1	0.0028	0.616			
	16	15.00		W14X233	W	1.33	15.90	90.00	90.00	86	1.43	36.7	0.0026	0.580			
	17	15.00		W14X233	W	1.33	15.90	0.00	120.00	86	1.43	45.2	0.0032	0.714			
	18	15.00		W14X257	W	1.37	16.00	30.00	120.00	92	1.52	45.1	0.0030	0.661			
	19	15.00		W14X257	W	1.37	16.00	60.00	120.00	92	1.52	42.1	0.0028	0.616			
	20	15.00		W14X233	W	1.33	15.90	90.00	120.00	86	1.43	36.7	0.0026	0.580			
	21	15.00		W14X233	W	1.33	15.90	0.00	150.00	60	1.00	31.7	0.0032	0.657			-112.4
	22	15.00		W14X233	W	1.33	15.90	30.00	150.00	60	1.00	29.7	0.0030	0.616			-112.4
	23	15.00		W14X233	W	1.33	15.90	60.00	150.00	60	1.00	27.7	0.0028	0.575			-112.4
	24	15.00		W14X233	W	1.33	15.90	90.00	150.00	60	1.00	25.7	0.0026	0.534			-112.4
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Project Sample Project, Anytown  
 Job No. 202322.1  
 By AL  
 Date 11/27/23  
 Sheet \_\_\_\_ of \_\_\_\_

Company Name  
 Company Address  
 Company Tel/Fax  
 Company Website

NBSD-Software.com

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 WF Shape = W30X116 WF Shape = W30X108

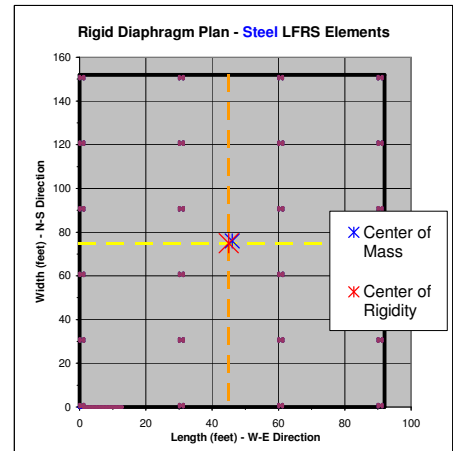
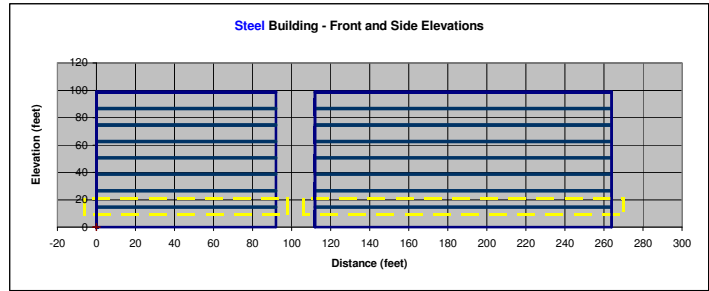
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2	0.00	0.00	0.00	0.00	0.00	0
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					Strong / Weak Axis	L or d (feet)	t or b <sub>t</sub> (inches)	x (feet)	y (feet)	K (kip/in)	Relative Stiffness						
W-E	1	15.00		W14X233	S	1.33	15.90	0.00	0.00	63	1.04	32.6	0.0032	0.572	121.9		121.9
	2	15.00		W14X233	S	1.33	15.90	30.00	0.00	95	1.58	49.6	0.0032	0.600			
	3	15.00		W14X233	S	1.33	15.90	60.00	0.00	95	1.58	49.6	0.0032	0.600			
	4	15.00		W14X233	S	1.33	15.90	90.00	0.00	63	1.04	32.6	0.0032	0.572	-125.6		-125.6
	5	15.00		W14X233	S	1.33	15.90	0.00	30.00	63	1.04	31.3	0.0031	0.549	121.9		121.9
	6	15.00		W14X257	S	1.37	16.00	30.00	30.00	101	1.67	50.4	0.0031	0.570			
	7	15.00		W14X257	S	1.37	16.00	60.00	30.00	101	1.67	50.4	0.0031	0.570			
	8	15.00		W14X233	S	1.33	15.90	90.00	30.00	63	1.04	31.3	0.0031	0.549	-125.6		-125.6
	9	15.00		W14X233	S	1.33	15.90	0.00	60.00	63	1.04	29.9	0.0029	0.525	121.9		121.9
	10	15.00		W14X257	S	1.37	16.00	30.00	60.00	101	1.67	48.2	0.0029	0.546			
	11	15.00		W14X257	S	1.37	16.00	60.00	60.00	101	1.67	48.2	0.0029	0.546			
	12	15.00		W14X233	S	1.33	15.90	90.00	60.00	63	1.04	29.9	0.0029	0.525	-125.6		-125.6
	13	15.00		W14X233	S	1.33	15.90	0.00	90.00	63	1.04	28.6	0.0028	0.502	121.9		121.9
	14	15.00		W14X257	S	1.37	16.00	30.00	90.00	101	1.67	46.1	0.0028	0.521			
	15	15.00		W14X257	S	1.37	16.00	60.00	90.00	101	1.67	46.1	0.0028	0.521			
	16	15.00		W14X233	S	1.33	15.90	90.00	90.00	63	1.04	28.6	0.0028	0.502	-125.6		-125.6
	17	15.00		W14X233	S	1.33	15.90	0.00	120.00	63	1.04	27.3	0.0027	0.478	121.9		121.9
	18	15.00		W14X257	S	1.37	16.00	30.00	120.00	101	1.67	43.9	0.0027	0.497			
	19	15.00		W14X257	S	1.37	16.00	60.00	120.00	101	1.67	43.9	0.0027	0.497			
	20	15.00		W14X233	S	1.33	15.90	90.00	120.00	63	1.04	27.3	0.0027	0.478	-125.6		-125.6
	21	15.00		W14X233	S	1.33	15.90	0.00	150.00	63	1.04	25.9	0.0025	0.455	121.9		121.9
	22	15.00		W14X233	S	1.33	15.90	30.00	150.00	95	1.58	39.4	0.0025	0.477			
	23	15.00		W14X233	S	1.33	15.90	60.00	150.00	95	1.58	39.4	0.0025	0.477			
	24	15.00		W14X233	S	1.33	15.90	90.00	150.00	63	1.04	25.9	0.0025	0.455	-125.6		-125.6
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