

Appendix A

Beam and Column Schedules

Columns				
C3 W14X99	C6 W24X84	C9 W14X74		
C2 W14X132	C5 W27X114	C8 W14X74		
C1 W14X159	C4 W27X161	C7 W14X132		
Girders	Beams	Foundations	Slabs	
G3 W24X55	B1 W24X55	F1 150-2.5	S1 1160-7.6	
G2 W24X76		F2 153-2.5	S2 2090-7.6	
G1 W24X94		F3 161-2.5		
	Walls	F4 247-2.5		
	W1 61 cm thk			
<p>foundations: K_H-D_{YH} where K_H = horizontal stiffness (tons/cm) and D_{YH} = yield displacement for horizontal (cm). For vertical: $K_V = K_H$, $D_{YD} = D_{YH}$ (down) and $D_{YU} = D_{YH}/2$ (up).</p> <p>slabs: A_{10}-h_{10} where A_{10} = effective area (cm²) and h_{10} = dis- tance from top of girder/beam to centroid of slab (cm).</p>				

Figure A.1: U6 Beam and Column Schedule. Reproduced from Hall (1997)

Columns				
C3 W14X120	C6 W24X104			
C2 W14X176	C5 W27X178			
C1 W14X211	C4 W30X211			
Girders	Beams	Foundations	Slabs	
G3 W24X84	B1 W24X55	F1 199-2.5	S1 1160-7.6	
G2 W27X102		F2 199-2.5	S2 2090-7.6	
G1 W30X124		F3 199-2.5		
	Walls	F4 247-2.5		
	W1 61 cm thk	F5 199-2.5		
		F6 247-2.5		
<p>foundations: K_H-D_{YH} where K_H = horizontal stiffness (tons/cm) and D_{YH} = yield displacement for horizontal (cm). For vertical: $K_V = K_H$, $D_{YD} = D_{YH}$ (down) and $D_{YU} = D_{YH}/2$ (up).</p> <p>slabs: A_{10}-h_{10} where A_{10} = effective area (cm²) and h_{10} = dis- tance from top of girder/beam to centroid of slab (cm).</p>				

Figure A.2: J6 Beam and Column Schedule. Reproduced from Hall (1997)

Columns					
C10	W14X109	C20	W21X122	C30	W14X74
C9	W14X132	C19	W24X146	C29	W14X74
C8	W14X159	C18	W24X146	C28	W14X82
C7	W14X176	C17	W24X162	C27	W14X109
C6	W14X211	C16	W24X176	C26	W14X132
C5	W14X257	C15	W24X176	C25	W14X159
C4	W14X283	C14	W27X178	C24	W14X193
C3	W14X311	C13	W27X178	C23	W14X211
C2	W14X342	C12	W27X178	C22	W14X233
C1	W14X370	C11	W30X191	C21	W14X283

Girders	Beams	Foundations	Slabs				
G10	W27X84	B1	W21X50	F1	468-2.5	S1	1160-7.6
G9	W27X94			F2	336-2.5	S2	2090-7.6
G8	W30X99			F3	353-2.5		
G7	W30X108	Walls		F4	534-2.5		
G6	W30X116						
G5	W30X116	W1	61 cm thk				
G4	W30X116						
G3	W30X116						
G2	W30X116						
G1	W30X116						

	foundations:	K_H - D_{YH}	where K_H = horizontal stiffness (tons/cm)
			and D_{YH} = yield displacement for horizontal (cm).
			For vertical: $K_V = K_H$, $D_{YD} = D_{YH}$ (down) and
			$D_{YU} = D_{YH}/2$ (up).
	slabs:	A_{10} - h_{10}	where A_{10} = effective area (cm ²) and h_{10} = dis-
			tance from top of girder/beam to centroid of slab (cm).

Figure A.3: U20 Beam and Column Schedule. Reproduced from Hall (1997)

Columns					
C10	W14X109	C20	W21X122	C30	W21X122
C9	W14X132	C19	W24X146	C29	W24X146
C8	W14X159	C18	W24X162	C28	W24X162
C7	W14X176	C17	W24X176	C27	W27X178
C6	W14X211	C16	W27X178	C26	W30X191
C5	W14X257	C15	W27X178	C25	W30X211
C4	W14X283	C14	W30X191	C24	W30X235
C3	W14X311	C13	W30X191	C23	W30X261
C2	W14X342	C12	W30X211	C22	W30X292
C1	W14X370	C11	W30X235	C21	W30X292

Girders		Beams		Foundations		Slabs	
G10	W27X84	B1	W21X50	F1	468-2.5	S1	1160-7.6
G9	W27X102			F2	336-2.5	S2	2090-7.6
G8	W30X108			F3	353-2.5		
G7	W30X116		Walls	F4	534-2.5		
G6	W30X124						
G5	W30X132	W1	61 cm thk				
G4	W30X132						
G3	W30X132						
G2	W30X132						
G1	W30X132						

	foundations:	K_H - D_{YH}	where K_H = horizontal stiffness (tons/cm)
			and D_{YH} = yield displacement for horizontal (cm).
			For vertical: $K_V = K_H$, $D_{YD} = D_{YH}$ (down) and
			$D_{YU} = D_{YH}/2$ (up).
	slabs:	A_{10} - h_{10}	where A_{10} = effective area (cm ²) and h_{10} = dis-
			tance from top of girder/beam to centroid of slab (cm).

Figure A.4: J20 Beam and Column Schedule. Reproduced from Hall (1997)

Appendix B

Parameter Values for Building Response Prediction Models

<i>Building</i>	α_0	α_1
J6B	-13.8981	4.5647
J6P	-17.3565	5.2063
U6B	-12.6149	4.8026
U6P	-16.2975	5.6305
J20B	-7.0129	4.0649
J20P	-12.9018	5.7055
U20B	-5.7308	4.1158
U20P	-9.9853	5.0448

Table B.1: Collapse Prediction Model 1 Parameter Values

<i>Building</i>	α_0	α_1	α_2	α_3
J6B	-14.1268	4.5944	6.3764	-1.4251
J6P	-15.8686	5.0122	5.567	-1.3208
U6B	-12.2557	3.5358	7.9055	-1.5656
U6P	-13.0851	4.6856	5.7154	-1.3132
J20B	-7.9504	1.5484	5.9786	-1.269
J20P	-10.9504	1.8709	4.9608	-0.95595
U20B	-7.3563	1.8157	6.642	-1.6564
U20P	-9.1289	1.7062	4.676	-0.97268

Table B.2: Collapse Prediction Model 2 Parameter Values

<i>Building</i>	α_0	α_1	α_2	α_3
J6B	-4.1347	2.5639	5.6936	0.87725
J6P	-5.3053	2.4328	4.5461	0.95854
U6B	-2.2026	1.647	7.0295	0.80455
U6P	-3.7288	2.8481	5.3092	0.89557
J20B	-1.5128	0.09216	4.8507	-0.075789
J20P	-4.9742	-0.11738	5.5992	0.47816
U20B	-0.4146	0.24178	4.4301	-0.45459
U20P	-3.5582	0.11023	4.7065	0.18378

Table B.3: Collapse Prediction Model 3 Parameter Values

<i>Building</i>	α_0	α_1
J6B	-4.6156	8.3926
J6P	-5.9971	7.5651
U6B	-2.4834	8.7822
U6P	-4.0757	7.8837
J20B	-1.5119	4.9178
J20P	-5.1287	6.0111
U20B	-0.42514	4.6164
U20P	-3.5577	4.9053

Table B.4: Collapse Prediction Model 4 Parameter Values

<i>Building</i>	α_0	α_1
J6B	-9.3457	4.0855
J6P	-12.5107	4.8573
U6B	-7.5787	4.1261
U6P	-8.6433	4.1359
J20B	-5.8643	4.2238
J20P	-10.7328	5.676
U20B	-4.4971	3.9596
U20P	-7.7667	4.828

Table B.5: Total Structural Loss Prediction Model 1 Parameter Values

<i>Building</i>	α_0	α_1	α_2	α_3
J6B	-6.7548	2.7145	5.7626	-1.5201
J6P	-7.8295	3.1617	5.1603	-1.5469
U6B	-6.9945	2.8625	8.0309	-1.8572
U6P	-6.467	3.3422	5.4862	-1.6938
J20B	-8.4202	1.9819	8.5133	-2.0369
J20P	-10.2929	2.2802	6.6464	-1.6433
U20B	-7.8503	2.6738	8.3734	-2.3943
U20P	-9.1823	2.2497	7.1271	-1.9313

Table B.6: Total Structural Loss Prediction Model 2 Parameter Values

<i>Building</i>	α_0	α_1	α_2	α_3
J6B	0.26232	0.85857	4.4082	0.75626
J6P	-0.99461	1.0247	4.1312	0.6551
U6B	1.9577	1.0225	5.1668	0.6486
U6P	0.72386	1.2857	3.8893	0.6063
J20B	0.088395	0.22919	5.4783	-0.15528
J20P	-2.86	0.0021268	5.7967	-0.29115
U20B	0.83382	0.69224	4.6958	-0.42055
U20P	-1.5508	-0.013309	5.3367	-0.97901

Table B.7: Total Structural Loss Prediction Model 3 Parameter Values

<i>Building</i>	α_0	α_1
J6B	0.21926	4.8912
J6P	-1.0657	4.9242
U6B	1.8839	5.6889
U6P	0.61411	4.6249
J20B	0.10757	5.6793
J20P	-2.8891	5.7171
U20B	0.89319	5.2686
U20P	-1.63	5.0824

Table B.8: Total Structural Loss Prediction Model 4 Parameter Values

<i>Building</i>	β_0	β_1	σ_1^2
J6B	-6.0027	1.1181	0.12821
J6P	-6.3171	1.1324	0.062353
U6B	-5.1041	0.86007	0.083564
U6P	-5.4306	0.94544	0.060581
J20B	-4.9716	1.1962	0.14049
J20P	-5.5475	1.1729	0.0828
U20B	-4.4545	0.86974	0.12281
U20P	-5.1004	1.1072	0.086538

Table B.9: IDR Prediction Model 1 Parameter Values

<i>Building</i>	β_1	β_2	β_3	σ_2^2
J6B	0.0014688	0.024175	0.0056618	0.25576
J6P	0.002293	0.018916	0.0015644	0.21324
U6B	-0.0022285	0.040543	0.0032437	0.15208
U6P	-0.00066393	0.032036	0.0020584	0.14791
J20B	-0.0076289	0.029818	0.011979	0.26426
J20P	-0.0042281	0.017802	0.0047692	0.16918
U20B	0.0032245	0.031332	0.00059847	0.17011
U20P	-0.0031545	0.022054	0.0050911	0.15753

Table B.10: IDR Prediction Model 2 Parameter Values

<i>Building</i>	β_0	β_1	β_2	β_3	σ_3^2
J6B	-3.4522	0.20738	1.0567	0.15098	0.256
J6P	-3.7841	0.20922	0.95957	0.1761	0.21313
U6B	-3.1691	0.034795	1.1951	0.20948	0.15083
U6P	-3.3927	0.079362	1.1248	0.20223	0.14711
J20B	-3.3758	-0.016413	1.2768	-0.06432	0.26507
J20P	-3.9761	-0.037192	1.3317	0.014034	0.16927
U20B	-3.3533	0.076216	0.82062	-0.14245	0.16672
U20P	-3.7075	-0.00071213	1.1407	-0.11191	0.15523

Table B.11: IDR Prediction Model 3 Parameter Values

<i>Building</i>	β_0	β_1	σ_4^2
J6B	-3.4987	1.0595	0.25605
J6P	-3.8089	0.98168	0.2142
U6B	-3.2275	0.98107	0.15226
U6P	-3.4234	0.99531	0.14779
J20B	-3.371	1.31	0.26537
J20P	-3.9802	1.2935	0.16959
U20B	-3.3262	0.99188	0.1722
U20P	-3.7083	1.2042	0.1566

Table B.12: IDR Prediction Model 4 Parameter Values