BUILDING COLLAPSE LOADS TO ACCORDING BEAM and COLUMN CAPACITY MOMENTS

TOTAL COLUMN BASE CAPACITY MOMENT : Mrx=4226.23 (tm) Mry=4018.08 (tm)
TOTAL BEAM CAPACITY MOMENT : Mrx=1081.98 (tm) Mry=871.47 (tm)
∑Mc<∑Mb > Mb=Mc ARRANGEMENT BEAM CAPACITY MOMENT : Mrx=1081.98 (tm) Mry=960.05 (tm)
X DIR. COLLAPSE CAPACITY : Px=252.43 x (4226.23 + 1081.98) / 2869.62 = 466.95 (t)
Y DIR. COLLAPSE CAPACITY : Py=253.79 x (4018.08 + 960.05) / 2894.44 = 436.48 (t)
SOFT STORY COLLAPSE CAP. : Px=2817.48 (t), Py=4262.77 (t)
Retrofit Project: Capacity check for E1: New R/C bars, E2-E9: Existing R/C bars
Vtx=λ.Ao.I.S(t).W=858.27 (t) (λ=0.85)
Vty=λ.Ao.I.S(t).W=862.87 (t) (λ=0.85)

	X dir.			Y dir.		
Story no	Column ∑Mc	Beam (Mci ≥ Mbi) ∑Mbi	Capacity Vr	Column ∑Mc	Beam (Mci ≥ Mbi) ∑Mbi	Capacity Vr
5	1023.52	164.40	395.97	1817.38	117.28	644.89
4	1095.78	391.73	309.96	1918.06	292.03	460.31
3	1152.22	620.24	263.36	1984.48	477.62	365.24
2	4102.55	878.73	563.67	3790.66	740.52	511.49
1	4226.23	1081.98	466.95	4018.08	960.05	436.48

(Mci ≥ Mbi) >> ∑Mbi Beam Plastic Hinge Check

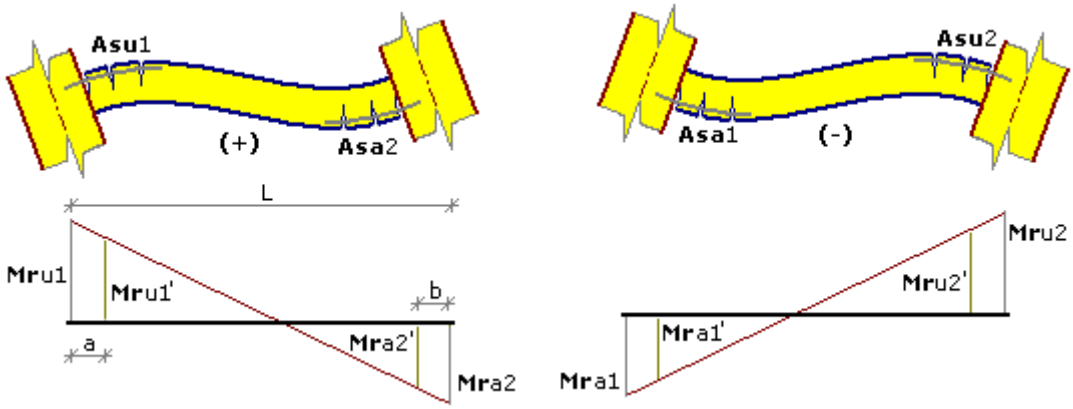
EXISTING & RETROFITTED BUILDING COLAPSE PREVENTION COMPARISONS

	X dir.			Y dir.		
Story no	Seismic Ve	Exist Building Vr	Retrofitted Vr	Seismic Ve	Exist Building Vr	Retrofitted Vr
5	96.57	107.89 ✓	395.97 ✓	97.91	94.25 ✗	644.89 ✓
4	161.07	120.74 ✗	309.96 ✓	163.06	100.85 ✗	460.31 ✓
3	207.10	124.02 ✗	263.36 ✓	209.27	103.99 ✗	365.24 ✓
2	238.75	126.45 ✗	563.67 ✓	240.79	106.25 ✗	511.49 ✓
1	252.16	121.64 ✗	466.95 ✓	253.83	103.03 ✗	436.48 ✓

RETROFITING PROJECT: COLUMNS CAPACITY SCHEDULE FOR EXISTING R/C BARS

COLUMN min. Longitudinal reinf. ratio : 0.01
EXISTING BAR CORROSION RATIO % : 0

COLUMN NO	SIZE	COLUMN RC. BARS	As cm²	-X		+X		-Y		+Y	
				Nd	Mr	Nd	Mr	Nd	Mr	Nd	Mr
C401	25x50	2x4ø14+2x1ø14 g.	15.39	11.21	4.15	8.32	3.89	10.97	9.12	7.67	8.45
C301	25x50	2x4ø14+2x1ø14 g.	15.39	22.98	4.87	16.46	4.56	22.53	11.28	15.37	10.01
C201	25x50	2x4ø14+2x1ø14 g.	15.39	34.66	5.41	24.48	4.94	34.74	12.61	22.29	11.25
C101	25x50	2x4ø14+2x1ø14 g.	15.39	46.26	5.68	32.14	5.30	46.20	13.13	29.67	12.10
CZ01	25x60	2x3ø14+2x2ø14 g.	15.39	58.20	6.82	40.13	6.30	58.00	17.02	37.21	15.23
C402	25x50	2x4ø14+2x1ø14 g.	15.39	9.20	3.97	8.83	3.93	12.83	9.50	8.57	8.63
C302	25x50	2x4ø14+2x1ø14 g.	15.39	19.55	4.70	16.91	4.58	26.25	11.71	16.30	10.20
C202	25x50	2x4ø14+2x1ø14 g.	15.39	30.05	5.20	25.13	4.97	39.80	12.84	23.93	11.44
C102	25x60	2x3ø14+2x2ø14 g.	15.39	41.20	6.36	33.89	5.96	53.83	16.71	31.61	14.53
CZ02	25x60	2x3ø14+2x2ø14 g.	15.39	52.22	6.68	42.53	6.43	67.60	17.38	39.28	15.48
C403	50x25	2x4ø14+2x1ø14 g.	15.39	7.88	8.49	5.07	7.92	6.56	3.73	6.56	3.73
C303	50x25	2x4ø14+2x1ø14 g.	15.39	14.53	9.84	11.17	9.16	13.29	4.35	13.29	4.35
C203	50x25	2x4ø14+2x1ø14 g.	15.39	21.18	11.12	17.34	10.41	19.91	4.72	19.91	4.72
C103	50x25	2x4ø14+2x1ø14 g.	15.39	27.46	11.85	23.51	11.39	26.44	5.03	26.44	5.03
CZ03	60x25	2x3ø14+2x2ø14 g.	15.39	35.11	14.96	31.60	14.53	37.35	6.15	33.04	5.92
C404	25x50	2x4ø14+2x1ø14 g.	15.39	5.06	3.59	5.06	3.59	1.05	7.10	0.07	6.90
C304	25x50	2x4ø14+2x1ø14 g.	15.39	9.68	4.01	9.68	4.01	3.19	7.54	-1.02	6.68
C204	25x50	2x4ø14+2x1ø14 g.	15.39	16.81	4.57	16.81	4.57	8.91	8.70	1.30	7.15
C104	25x60	2x3ø14+2x2ø14 g.	15.39	2.38	3.33	2.38	3.33	-5.90	6.87	-16.18	4.34
CZ04	25x60	2x3ø14+2x2ø14 g.	15.39	4.76	3.55	4.76	3.55	-3.56	7.44	-16.77	4.20
C405	50x25	2x4ø14+2x1ø14 g.	15.39	6.76	8.26	1.98	7.29	7.82	3.84	0.11	3.13
C305	50x25	2x4ø14+2x1ø14 g.	15.39	14.31	9.80	4.75	7.85	17.89	4.62	-1.86	2.95
C205	50x25	2x4ø14+2x1ø14 g.	15.39	24.94	11.56	10.61	9.04	29.96	5.20	0.66	3.18
C105	50x30	2x4ø14+2x1ø14 g.	15.39	11.52	9.20	-7.58	5.33	19.00	6.05	-21.43	1.42
CZ05	60x30	2x4ø14+2x2ø14 g.	18.46	15.46	13.81	-7.93	8.05	21.46	7.10	-26.58	1.61
C406	50x25	2x4ø14+2x1ø14 g.	15.39	15.45	10.03	10.63	9.05	11.74	4.20	12.73	4.29
C306	50x25	2x4ø14+2x1ø14 g.	15.39	30.74	12.23	20.23	11.00	24.96	4.96	24.79	4.95
C206	50x25	2x4ø14+2x1ø14 g.	15.39	46.25	13.14	30.07	12.15	37.27	5.47	37.52	5.47
C106	60x30	2x4ø14+2x2ø14 g.	18.46	62.54	20.38	40.51	18.15	51.60	9.20	50.08	9.11
CZ06	60x30	2x4ø14+2x2ø14 g.	18.46	78.37	21.37	50.51	19.42	65.82	9.66	62.70	9.56
C407	50x25	2x4ø14+2x1ø14 g.	15.39	11.09	9.14	10.42	9.01	14.79	4.48	17.03	4.58
C307	50x25	2x4ø14+2x1ø14 g.	15.39	23.66	11.41	21.34	11.14	28.30	5.12	33.26	5.35
C207	50x25	2x4ø14+2x1ø14 g.	15.39	36.62	12.70	32.64	12.45	41.95	5.58	49.64	5.75
C107	60x30	2x4ø14+2x2ø14 g.	18.46	51.56	19.54	46.15	18.87	55.43	9.33	65.70	9.66
CZ07	60x30	2x4ø14+2x2ø14 g.	18.46	66.21	20.66	59.22	20.13	68.57	9.75	81.03	10.04
C408	25x50	2x4ø14+2x1ø14 g.	15.39	2.00	3.30	7.49	3.81	0.71	7.03	8.42	8.60
C308	25x50	2x4ø14+2x1ø14 g.	15.39	3.79	3.47	16.62	4.56	1.46	7.18	21.21	11.12
C208	25x50	2x4ø14+2x1ø14 g.	15.39	12.98	4.32	33.14	5.35	10.39	9.00	39.70	12.84



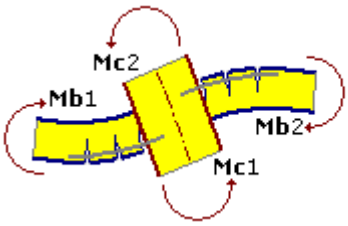
BEAMS CAPACITY SCHEDULE

Vlim = 0.22 Aw fcd

BEAM NO	Bw D	Ln	a b	Lft Rgt	Asu (cm²)	Asa (cm²)	Mra'	Mru'	Mg+Mq	Mra	Mru	Vd	Vr
BZ01	20	4.000	0.000	Lft	3.80	3.08	3.31	4.01 >	1.51 ✓	3.31	4.01	4.97 <	14.32 ✓
	50		0.000	Rgt	4.93	3.08	3.31	5.16 >	-1.08 ✓	3.31	5.16	3.38 <	14.32 ✓
BZ02	20	2.975	0.000	Lft	4.93	4.62	4.84	5.16 >	1.47 ✓	4.84	5.16	5.01 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.84	4.01 >	-1.24 ✓	4.84	4.01	5.05 <	14.32 ✓
BZ04	20	3.600	0.000	Lft	5.40	4.62	4.88	5.63 >	3.41 ✓	4.88	5.63	7.18 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.88	5.63 >	2.79 ✓	4.88	5.63	5.45 <	14.32 ✓
BZ05	20	3.050	0.000	Lft	5.40	6.03	6.27	5.63 >	-2.77 ✓	6.27	5.63	6.29 <	14.32 ✓
	50		0.000	Rgt	4.27	6.03	6.27	4.49 >	-3.96 ✓	6.27	4.49	8.47 <	14.32 ✓
BZ06	20	3.605	0.000	Lft	5.40	4.62	4.84	5.63 >	3.67 ✓	4.84	5.63	7.04 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.84	5.63 >	-2.35 ✓	4.84	5.63	6.31 <	14.32 ✓
BZ07	20	3.000	0.000	Lft	12.57	6.28	6.52	12.80 >	-3.99 ✓	6.52	12.80	11.10 <	17.25 ✓
	50		0.000	Rgt	18.85	6.28	6.52	18.31 >	0.02 ✓	6.52	18.31	9.21 <	17.25 ✓
BZ07	20	1.500	0.000	Lft	18.85	6.28	6.52	18.31 >	2.68 ✓	6.52	18.31	17.13 <	17.25 ✓
	50		0.000	Rgt	18.85	6.28	6.52	18.31 >	-2.68 ✓	6.52	18.31	17.12 <	17.25 ✓
BZ08	20	3.900	0.000	Lft	3.80	3.08	3.28	4.01 >	1.59 ✓	3.28	4.01	4.49 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-2.51 ✓	3.28	5.57	4.98 <	14.32 ✓
BZ09	20	4.550	0.000	Lft	5.34	3.08	3.28	5.57 >	2.12 ✓	3.28	5.57	4.45 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-2.36 ✓	3.28	5.57	4.51 <	14.32 ✓
BZ10	20	5.850	0.000	Lft	9.36	3.08	3.31	9.56 >	7.06 ✓	3.31	9.56	7.98 <	14.32 ✓
	50		0.000	Rgt	8.48	3.08	3.31	8.71 >	-1.01 ✓	3.31	8.71	3.35 <	14.32 ✓
BZ11	20	3.005	0.000	Lft	8.48	2.26	2.45	8.67 >	2.04 ✓	2.45	8.67	5.58 <	14.32 ✓
	50		0.000	Rgt	3.80	2.26	2.45	4.01 >	-2.38 ✓	2.45	4.01	6.21 <	14.32 ✓
BZ12	20	3.745	0.000	Lft	3.80	3.08	3.28	4.01 >	1.07 ✓	3.28	4.01	4.22 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-1.01 ✓	3.28	5.57	3.51 <	14.32 ✓
BZ13	20	3.595	0.000	Lft	5.40	4.62	4.88	5.63 >	2.07 ✓	4.88	5.63	6.78 <	14.32 ✓
	50		0.000	Rgt	6.28	4.62	4.88	6.52 >	-0.05 ✓	4.88	6.52	3.97 <	14.32 ✓
BZ14	20	2.250	0.000	Lft	6.28	4.62	4.88	6.52 >	2.70 ✓	4.88	6.52	8.17 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.88	4.01 >	-2.76 ✓	4.88	4.01	8.41 <	14.32 ✓
BZ15	20	3.000	0.000	Lft	3.80	4.62	4.84	4.01 >	0.53 ✓	4.84	4.01	5.72 <	19.77 ✓
	50		0.000	Rgt	6.54	4.62	4.84	6.78 >	3.10 ✓	4.84	6.78	8.12 <	19.77 ✓
BZ16	20	3.455	0.000	Lft	6.54	6.28	6.52	6.78 >	-2.56 ✓	6.52	6.78	4.11 <	14.32 ✓
	50		0.000	Rgt	7.42	6.28	6.52	7.67 >	-2.76 ✓	6.52	7.67	7.45 <	14.32 ✓
BZ17	20	4.030	0.000	Lft	4.62	3.08	3.28	4.84 >	1.36 ✓	3.28	4.84	6.08 <	14.32 ✓
	50		0.000	Rgt	5.75	3.08	3.28	5.98 >	-0.16 ✓	3.28	5.98	3.31 <	14.32 ✓
BZ18	20	1.945	0.000	Lft	5.75	2.26	2.45	5.98 >	1.46 ✓	2.45	5.98	10.20 <	14.32 ✓
	50		0.000	Rgt	12.51	2.26	2.45	12.31 >	7.56 ✓	2.45	12.31	55.23 >	14.32 ✗
BZ21	20	2.255	0.000	Lft	3.80	4.62	4.84	4.01 >	1.05 ✓	4.84	4.01	6.27 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.84	5.63 >	-1.31 ✓	4.84	5.63	6.55 <	14.32 ✓
BZ22	20	4.000	0.000	Lft	4.93	3.08	3.31	5.16 >	2.35 ✓	3.31	5.16	5.33 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.31	4.01 >	-1.49 ✓	3.31	4.01	3.78 <	14.32 ✓
BZ23	20	2.975	0.000	Lft	3.80	4.62	4.84	4.01 >	1.05 ✓	4.84	4.01	4.60 <	14.32 ✓
	50		0.000	Rgt	4.93	4.62	4.84	5.16 >	-1.60 ✓	4.84	5.16	6.24 <	14.32 ✓
BZ25	20	3.600	0.000	Lft	5.40	4.62	4.88	5.63 >	4.35 ✓	4.88	5.63	7.82 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.88	5.63 >	-3.02 ✓	4.88	5.63	7.53 <	14.32 ✓
BZ26	20	2.900	0.000	Lft	3.80	6.03	6.27	4.01 >	-2.76 ✓	6.27	4.01	6.71 <	14.32 ✓
	50		0.000	Rgt	5.40	6.03	6.27	5.63 >	-2.58 ✓	6.27	5.63	8.03 <	14.32 ✓
BZ27	20	3.605	0.000	Lft	5.40	4.62	4.84	5.63 >	2.39 ✓	4.84	5.63	6.35 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.84	5.63 >	-3.56 ✓	4.84	5.63	7.01 <	14.32 ✓
BZ28	20	1.500	0.000	Lft	18.85	6.28	6.52	18.31 >	-0.02 ✓	6.52	18.31	15.10 <	17.25 ✓
	50		0.000	Rgt	18.85	6.28	6.52	18.31 >	3.98 ✓	6.52	18.31	16.99 <	17.25 ✓
BZ28	20	2.900	0.000	Lft	18.85	6.28	6.52	18.31 >	-3.96 ✓	6.52	18.31	10.67 <	17.25 ✓
	50		0.000	Rgt	12.57	6.28	6.52	12.80 >	-2.68 ✓	6.52	12.80	11.52 <	17.25 ✓
BZ29	20	3.900	0.000	Lft	5.34	3.08	3.28	5.57 >	1.74 ✓	3.28	5.57	4.63 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.28	4.01 >	-2.36 ✓	3.28	4.01	4.83 <	14.32 ✓
BZ30	20	4.550	0.000	Lft	5.34	3.08	3.28	5.57 >	2.47 ✓	3.28	5.57	4.60 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-1.57 ✓	3.28	5.57	4.21 <	14.32 ✓
BZ31	20	5.850	0.000	Lft	9.36	3.08	3.31	9.56 >	6.85 ✓	3.31	9.56	7.95 <	14.32 ✓
	50		0.000	Rgt	8.48	3.08	3.31	8.71 >	-0.91 ✓	3.31	8.71	3.23 <	14.32 ✓
BZ32	20	3.005	0.000	Lft	8.48	2.26	2.45	8.67 >	2.31 ✓	2.45	8.67	5.70 <	14.32 ✓
	50		0.000	Rgt	3.80	2.26	2.45	4.01 >	-2.48 ✓	2.45	4.01	6.27 <	14.32 ✓

BEAM NO	Bw D	Ln	a b	Lft Rgt	Asu (cm²)	Asa (cm²)	Mra'	Mru'	Mg+Mq	Mra	Mru	Vd	Vr
B136	20	3.025	0.000	Lft	3.80	4.62	4.84	4.01 >	0.27 ✓	4.84	4.01	5.23 <	19.77 ✓
	50		0.000	Rgt	5.40	4.62	4.84	5.63 >	3.36 ✓	4.84	5.63	7.85 <	19.77 ✓
B137	20	3.455	0.000	Lft	5.40	6.28	6.52	5.63 >	-2.87 ✓	6.52	5.63	4.93 <	14.32 ✓
	50		0.000	Rgt	8.55	6.28	6.52	8.81 >	-2.88 ✓	6.52	8.81	7.92 <	14.32 ✓
B139	20	1.950	0.000	Lft	4.21	2.26	2.45	4.42 >	-0.05 ✓	2.45	4.42	8.22 <	14.32 ✓
	50		0.000	Rgt	12.51	2.26	2.45	12.31 >	6.69 ✓	2.45	12.31	32.19 >	14.32 ✗
B142	20	3.050	0.000	Lft	2.26	4.62	4.84	2.45 >	-1.83 ✓	4.84	2.45	4.17 <	14.32 ✓
	50		0.000	Rgt	2.26	4.62	4.84	2.45 >	1.81 ✓	4.84	2.45	26.02 >	14.32 ✗
B143	20	2.750	0.000	Lft	3.80	4.62	4.84	4.01 >	-1.63 ✓	4.84	4.01	5.01 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.84	4.01 >	-1.31 ✓	4.84	4.01	4.79 <	14.32 ✓
B201	20	4.000	0.000	Lft	3.80	3.08	3.31	4.01 >	1.56 ✓	3.31	4.01	4.70 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.31	4.01 >	-1.86 ✓	3.31	4.01	4.03 <	14.32 ✓
B202	20	2.975	0.000	Lft	3.80	4.62	4.84	4.01 >	1.26 ✓	4.84	4.01	4.47 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.84	4.01 >	1.58 ✓	4.84	4.01	4.76 <	14.32 ✓
B204	20	3.700	0.000	Lft	5.40	4.62	4.88	5.63 >	3.11 ✓	4.88	5.63	7.10 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.88	5.63 >	3.33 ✓	4.88	5.63	6.28 <	14.32 ✓
B205	20	3.025	0.000	Lft	5.40	6.03	6.27	5.63 >	-3.32 ✓	6.27	5.63	5.42 <	14.32 ✓
	50		0.000	Rgt	3.80	6.03	6.27	4.01 <	-4.29 ✗	6.27	4.01	8.84 <	14.32 ✓
B206	20	3.705	0.000	Lft	5.81	3.08	3.28	6.04 >	4.19 ✓	3.28	6.04	7.14 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.28	4.01 >	-1.64 ✓	3.28	4.01	5.76 <	14.32 ✓
B207	20	3.000	0.000	Lft	12.57	6.28	6.52	12.80 >	-4.43 ✓	6.52	12.80	10.73 <	17.25 ✓
	50		0.000	Rgt	18.85	6.28	6.52	18.31 >	-3.96 ✓	6.52	18.31	11.63 <	17.25 ✓
B207	20	1.500	0.000	Lft	18.85	6.28	6.52	18.31 >	0.29 ✓	6.52	18.31	14.63 <	17.25 ✓
	50		0.000	Rgt	18.85	6.28	6.52	18.31 >	-0.26 ✓	6.52	18.31	14.63 <	17.25 ✓
B208	20	3.950	0.000	Lft	3.80	3.08	3.28	4.01 >	1.59 ✓	3.28	4.01	4.57 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-2.81 ✓	3.28	5.57	5.09 <	14.32 ✓
B209	20	4.525	0.000	Lft	5.34	3.08	3.28	5.57 >	1.76 ✓	3.28	5.57	4.32 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-1.68 ✓	3.28	5.57	4.30 <	14.32 ✓
B210	20	5.875	0.000	Lft	11.69	6.28	6.56	11.96 >	6.56 ✓	6.56	11.96	8.56 <	14.32 ✓
	50		0.000	Rgt	8.55	6.28	6.56	8.81 >	-1.30 ✓	6.56	8.81	4.04 <	14.32 ✓
B211	20	3.005	0.000	Lft	8.55	2.26	2.45	8.73 >	2.13 ✓	2.45	8.73	4.61 <	14.32 ✓
	50		0.000	Rgt	3.80	2.26	2.45	4.01 >	-2.66 ✓	2.45	4.01	5.49 <	14.32 ✓
B212	20	3.820	0.000	Lft	3.80	3.08	3.28	4.01 >	0.90 ✓	3.28	4.01	4.12 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-1.30 ✓	3.28	5.57	3.56 <	14.32 ✓
B213	20	3.695	0.000	Lft	5.40	4.62	4.88	5.63 >	1.53 ✓	4.88	5.63	6.64 <	14.32 ✓
	50		0.000	Rgt	6.28	4.62	4.88	6.52 >	0.87 ✓	4.88	6.52	3.53 <	14.32 ✓
B214	20	2.175	0.000	Lft	6.28	4.62	4.88	6.52 >	4.46 ✓	4.88	6.52	9.88 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.88	4.01 >	-2.99 ✓	4.88	4.01	8.93 <	14.32 ✓
B215	20	3.000	0.000	Lft	3.80	4.62	4.84	4.01 >	-0.14 ✓	4.84	4.01	5.32 <	19.77 ✓
	50		0.000	Rgt	6.28	4.62	4.84	6.52 >	3.60 ✓	4.84	6.52	8.14 <	19.77 ✓
B216	20	3.580	0.000	Lft	6.28	4.02	4.23	6.52 >	-3.09 ✓	4.23	6.52	3.53 <	14.32 ✓
	50		0.000	Rgt	7.42	4.02	4.23	7.66 >	-2.99 ✓	4.23	7.66	6.99 <	14.32 ✓
B218	20	1.970	0.000	Lft	4.21	2.26	2.45	4.42 >	0.63 ✓	2.45	4.42	8.01 <	14.32 ✓
	50		0.000	Rgt	9.36	2.26	2.45	9.50 >	7.25 ✓	2.45	9.50	12.06 <	14.32 ✓
B221	20	2.355	0.000	Lft	3.80	4.62	4.84	4.01 >	1.74 ✓	4.84	4.01	7.27 <	14.32 ✓
	50		0.000	Rgt	6.28	4.62	4.84	6.52 >	-0.48 ✓	4.84	6.52	6.23 <	14.32 ✓
B222	20	4.000	0.000	Lft	3.80	3.08	3.31	4.01 >	2.27 ✓	3.31	4.01	5.02 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.31	4.01 >	-1.21 ✓	3.31	4.01	3.30 <	14.32 ✓
B223	20	2.975	0.000	Lft	3.80	4.62	4.84	4.01 >	1.88 ✓	4.84	4.01	5.20 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.84	4.01 >	-1.60 ✓	4.84	4.01	5.87 <	14.32 ✓
B225	20	3.700	0.000	Lft	5.40	4.62	4.88	5.63 >	4.18 ✓	4.88	5.63	7.68 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.88	5.63 >	-3.35 ✓	4.88	5.63	8.24 <	14.32 ✓
B226	20	2.900	0.000	Lft	3.80	6.03	6.27	4.01 >	-3.34 ✓	6.27	4.01	7.50 <	14.32 ✓
	50		0.000	Rgt	5.40	6.03	6.27	5.63 >	-3.23 ✓	6.27	5.63	8.43 <	14.32 ✓
B227	20	3.655	0.000	Lft	3.80	4.62	4.84	4.01 >	1.52 ✓	4.84	4.01	5.98 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.84	5.63 >	-4.27 ✓	4.84	5.63	7.45 <	14.32 ✓
B228	20	1.500	0.000	Lft	18.85	6.28	6.52	18.31 >	3.93 ✓	6.52	18.31	16.69 <	17.25 ✓
	50		0.000	Rgt	18.85	6.28	6.52	18.31 >	4.47 ✓	6.52	18.31	15.76 <	17.25 ✓
B228	20	2.900	0.000	Lft	18.85	6.28	6.52	18.31 >	-4.46 ✓	6.52	18.31	11.09 <	17.25 ✓
	50		0.000	Rgt	12.57	6.28	6.52	12.80 >	-0.26 ✓	6.52	12.80	9.85 <	17.25 ✓
B229	20	3.925	0.000	Lft	5.34	3.08	3.28	5.57 >	1.38 ✓	3.28	5.57	4.44 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.28	4.01 >	-1.68 ✓	3.28	4.01	4.60 <	14.32 ✓
B230	20	4.525	0.000	Lft	5.34	3.08	3.28	5.57 >	2.83 ✓	3.28	5.57	4.82 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-1.93 ✓	3.28	5.57	4.43 <	14.32 ✓
B231	20	5.900	0.000	Lft	8.48	3.08	3.31	8.71 >	6.40 ✓	3.31	8.71	7.72 <	14.32 ✓
	50		0.000	Rgt	8.48	3.08	3.31	8.71 >	-1.39 ✓	3.31	8.71	3.47 <	14.32 ✓
B232	20	2.980	0.000	Lft	8.48	4.62	4.84	8.74 >	1.61 ✓	4.84	8.74	6.15 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.84	4.01 >	-3.02 ✓	4.84	4.01	7.32 <	14.32 ✓
B233	20	3.770	0.000	Lft	3.80	3.08	3.28	4.01 >	0.80 ✓	3.28	4.01	3.99 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-1.39 ✓	3.28	5.57	3.78 <	14.32 ✓
B234	20	3.695	0.000	Lft	5.40	4.62	4.88	5.63 >	1.58 ✓	4.88	5.63	6.66 <	14.32 ✓
	50		0.000	Rgt	6.28	4.62	4.88	6.52 >	1.10 ✓	4.88	6.52	3.74 <	14.32 ✓
B235	20	2.175	0.000	Lft	6.28	4.62	4.88	6.52 >	4.66 ✓	4.88	6.52	10.08 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.88	4.01 >	-3.05 ✓	4.88	4.01	8.98 <	14.32 ✓
B236	20	3.025	0.000	Lft	3.80	4.62	4.84	4.01 >	-0.31 ✓	4.84	4.01	5.22 <	19.77 ✓
	50		0.000	Rgt	6.54	4.62	4.84	6.78 >	3.33 ✓	4.84	6.78	8.40 <	19.77 ✓
B237	20	3.555	0.000	Lft	6.54	6.28	6.52	6.78 >	-2.79 ✓	6.52	6.78	3.78 <	14.32 ✓
	50		0.000	Rgt	6.94	6.28	6.52	7.19 >	-3.05 ✓	6.52	7.19	7.48 <	14.32 ✓
B239	20	1.975	0.000	Lft	4.21	4.62	4.84	4.42 >	0.63 ✓	4.84	4.42	9.29 <	14.32 ✓
	50		0.000	Rgt	9.36	4.62	4.84	9.62 >	7.26 ✓	4.84	9.62	13.35 <	14.32 ✓
B242	20	3.050	0.000	Lft	2.26	4.62	4.84	2.45 >	-1.95 ✓	4.84	2.45	4.22 <	14.32 ✓
	50		0.000	Rgt	2.26	4.62	4.84	2.45 >	2.00 ✓	4.84	2.45	13.07 <	14.32 ✓

BEAM NO	Bw D	Ln	a b	Lft Rgt	Asu (cm²)	Asa (cm²)	Mra'	Mru'	Mg+Mq	Mra	Mru	Vd	Vr
B405	20	3.025	0.000	Lft	5.40	6.03	6.27	5.63 >	-3.54 ✓	6.27	5.63	4.15 <	14.32 ✓
	50		0.000	Rgt	3.80	6.03	6.27	4.01 <	-4.40 ✗	6.27	4.01	7.91 <	14.32 ✓
B406	20	3.705	0.000	Lft	5.34	3.08	3.28	5.57 >	3.72 ✓	3.28	5.57	6.96 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.28	4.01 >	-1.34 ✓	3.28	4.01	5.68 <	14.32 ✓
B407	20	3.000	0.000	Lft	12.57	6.28	6.52	12.80 >	-4.32 ✓	6.52	12.80	8.08 <	17.25 ✓
	50		0.000	Rgt	18.85	6.28	6.52	18.31 >	-2.59 ✓	6.52	18.31	6.68 <	17.25 ✓
B407	20	1.500	0.000	Lft	18.85	6.28	6.52	18.31 >	2.08 ✓	6.52	18.31	7.95 <	17.25 ✓
	50		0.000	Rgt	18.85	6.28	6.52	18.31 >	-2.09 ✓	6.52	18.31	7.97 <	17.25 ✓
B408	20	3.950	0.000	Lft	3.80	3.08	3.28	4.01 >	1.16 ✓	3.28	4.01	3.73 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-2.96 ✓	3.28	5.57	4.40 <	14.32 ✓
B409	20	4.525	0.000	Lft	5.34	3.08	3.28	5.57 >	1.64 ✓	3.28	5.57	3.20 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-1.59 ✓	3.28	5.57	3.19 <	14.32 ✓
B410	20	5.875	0.000	Lft	7.42	6.28	6.56	7.67 >	5.75 ✓	6.56	7.67	7.33 <	14.32 ✓
	50		0.000	Rgt	7.42	6.28	6.56	7.67 >	-1.14 ✓	6.56	7.67	2.59 <	14.32 ✓
B411	20	3.005	0.000	Lft	7.42	2.26	2.45	7.64 >	2.94 ✓	2.45	7.64	3.38 <	14.32 ✓
	50		0.000	Rgt	3.80	2.26	2.45	4.01 >	-2.32 ✓	2.45	4.01	3.83 <	14.32 ✓
B412	20	3.820	0.000	Lft	3.80	3.08	3.28	4.01 >	0.97 ✓	3.28	4.01	3.42 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.28	4.01 >	-1.14 ✓	3.28	4.01	2.43 <	14.32 ✓
B413	20	3.695	0.000	Lft	3.80	4.62	4.88	4.01 >	1.08 ✓	4.88	4.01	5.58 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.88	5.63 >	1.46 ✓	4.88	5.63	3.57 <	14.32 ✓
B414	20	2.175	0.000	Lft	5.40	4.62	4.88	5.63 <	5.68 ✗	4.88	5.63	8.35 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.88	4.01 >	-3.14 ✓	4.88	4.01	6.80 <	14.32 ✓
B415	20	3.000	0.000	Lft	3.80	4.62	4.84	4.01 >	-0.71 ✓	4.84	4.01	3.03 <	19.77 ✓
	50		0.000	Rgt	6.28	4.62	4.84	6.52 >	3.70 ✓	4.84	6.52	6.19 <	19.77 ✓
B416	20	3.580	0.000	Lft	6.28	4.02	4.23	6.52 >	-3.18 ✓	4.23	6.52	2.35 <	14.32 ✓
	50		0.000	Rgt	6.28	4.02	4.23	6.52 >	-3.14 ✓	4.23	6.52	6.23 <	14.32 ✓
B418	20	1.970	0.000	Lft	4.21	2.26	2.45	4.42 >	0.64 ✓	2.45	4.42	6.55 <	14.32 ✓
	50		0.000	Rgt	6.22	2.26	2.45	6.45 <	7.42 ✗	2.45	6.45	18.06 >	14.32 ✗
B421	20	2.405	0.000	Lft	3.80	4.62	4.84	4.01 >	1.37 ✓	4.84	4.01	6.71 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.84	5.63 >	-0.53 ✓	4.84	5.63	6.01 <	14.32 ✓
B422	20	4.000	0.000	Lft	3.80	3.08	3.31	4.01 >	2.15 ✓	3.31	4.01	4.74 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.31	4.01 >	-1.46 ✓	3.31	4.01	2.98 <	14.32 ✓
B423	20	2.975	0.000	Lft	3.80	2.26	2.45	4.01 >	1.96 ✓	2.45	4.01	3.88 <	14.32 ✓
	50		0.000	Rgt	3.80	2.26	2.45	4.01 >	-1.13 ✓	2.45	4.01	4.52 <	14.32 ✓
B425	20	3.700	0.000	Lft	5.40	4.62	4.88	5.63 >	4.18 ✓	4.88	5.63	7.61 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.88	5.63 >	-3.31 ✓	4.88	5.63	8.21 <	14.32 ✓
B426	20	2.900	0.000	Lft	3.80	6.03	6.27	4.01 >	-3.60 ✓	6.27	4.01	6.48 <	14.32 ✓
	50		0.000	Rgt	5.40	6.03	6.27	5.63 >	-2.82 ✓	6.27	5.63	7.15 <	14.32 ✓
B427	20	3.705	0.000	Lft	3.80	3.08	3.28	4.01 >	1.33 ✓	3.28	4.01	5.67 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-3.73 ✓	3.28	5.57	6.96 <	14.32 ✓
B428	20	1.500	0.000	Lft	18.85	6.28	6.52	18.31 >	2.56 ✓	6.52	18.31	8.33 <	17.25 ✓
	50		0.000	Rgt	18.85	6.28	6.52	18.31 >	4.33 ✓	6.52	18.31	9.75 <	17.25 ✓
B428	20	2.900	0.000	Lft	18.85	6.28	6.52	18.31 >	-4.31 ✓	6.52	18.31	7.94 <	17.25 ✓
	50		0.000	Rgt	12.57	6.28	6.52	12.80 >	-2.09 ✓	6.52	12.80	6.46 <	17.25 ✓
B429	20	3.950	0.000	Lft	5.34	3.08	3.28	5.57 >	1.49 ✓	3.28	5.57	3.90 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.28	4.01 >	-1.59 ✓	3.28	4.01	3.80 <	14.32 ✓
B430	20	4.525	0.000	Lft	5.34	3.08	3.28	5.57 >	2.95 ✓	3.28	5.57	3.80 <	14.32 ✓
	50		0.000	Rgt	5.34	3.08	3.28	5.57 >	-1.26 ✓	3.28	5.57	3.18 <	14.32 ✓
B431	20	5.900	0.000	Lft	7.42	6.28	6.56	7.67 >	5.70 ✓	6.56	7.67	7.44 <	14.32 ✓
	50		0.000	Rgt	8.55	6.28	6.56	8.81 >	-1.15 ✓	6.56	8.81	2.83 <	14.32 ✓
B432	20	2.980	0.000	Lft	8.55	2.26	2.45	8.73 >	2.65 ✓	2.45	8.73	3.52 <	14.32 ✓
	50		0.000	Rgt	3.80	2.26	2.45	4.01 >	-2.29 ✓	2.45	4.01	4.07 <	14.32 ✓
B433	20	3.820	0.000	Lft	3.80	3.08	3.28	4.01 >	1.00 ✓	3.28	4.01	3.44 <	14.32 ✓
	50		0.000	Rgt	3.80	3.08	3.28	4.01 >	-1.15 ✓	3.28	4.01	2.52 <	14.32 ✓
B434	20	3.695	0.000	Lft	3.80	4.62	4.88	4.01 >	1.14 ✓	4.88	4.01	5.60 <	14.32 ✓
	50		0.000	Rgt	5.40	4.62	4.88	5.63 >	1.64 ✓	4.88	5.63	3.71 <	14.32 ✓
B435	20	2.175	0.000	Lft	5.40	4.62	4.88	5.63 <	5.81 ✗	4.88	5.63	8.48 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.88	4.01 >	-3.36 ✓	4.88	4.01	6.93 <	14.32 ✓
B436	20	3.000	0.000	Lft	3.80	4.62	4.84	4.01 >	-0.90 ✓	4.84	4.01	2.90 <	19.77 ✓
	50		0.000	Rgt	6.28	4.62	4.84	6.52 >	3.62 ✓	4.84	6.52	6.32 <	19.77 ✓
B437	20	3.580	0.000	Lft	6.28	4.02	4.23	6.52 >	-3.09 ✓	4.23	6.52	2.46 <	14.32 ✓
	50		0.000	Rgt	6.28	4.02	4.23	6.52 >	-3.36 ✓	4.23	6.52	6.36 <	14.32 ✓
B439	20	1.975	0.000	Lft	4.21	2.26	2.45	4.42 >	0.64 ✓	2.45	4.42	6.56 <	14.32 ✓
	50		0.000	Rgt	6.22	2.26	2.45	6.45 <	7.42 ✗	2.45	6.45	18.12 >	14.32 ✗
B442	20	3.050	0.000	Lft	2.26	4.62	4.84	2.45 >	-1.96 ✓	4.84	2.45	4.22 <	14.32 ✓
	50		0.000	Rgt	2.26	4.62	4.84	2.45 >	1.97 ✓	4.84	2.45	16.20 >	14.32 ✗
B443	20	2.750	0.000	Lft	3.80	4.62	4.84	4.01 >	-1.60 ✓	4.84	4.01	4.78 <	14.32 ✓
	50		0.000	Rgt	3.80	4.62	4.84	4.01 >	-1.46 ✓	4.84	4.01	4.56 <	14.32 ✓



$Mc1+Mc2 \geq Mb1+Mb2 \rightarrow Rb=1$

$Mc1+Mc2 < Mb1+Mb2 \rightarrow Rb=\frac{Mb1+Mb2}{Mc1+Mc2}$

$Mrb1 = Rb \times Mb1$

$Mrb2 = Rb \times Mb2$

COLUMN-BEAM JOINTS MOMENT CAPACITY CHECK

COLUMN NO	(-X) ∑Mc		∑Mb	> ∑Mb	(+X) ∑Mc		∑Mb	> ∑Mb	(-Y) ∑Mc		∑Mb	> ∑Mb	(+Y) ∑Mc		∑Mb	> ∑Mb
C101	12.49	>	4.01	4.01	11.60	>	3.31	3.31	30.16	>	9.56	9.56	27.33	>	3.31	3.31
C201	11.08	>	4.01	4.01	10.24	>	3.31	3.31	25.75	>	8.71	8.71	23.35	>	3.31	3.31
C102	13.04	>	8.47	8.47	12.39	>	9.99	9.99	34.09	>	5.63	5.63	30.01	>	4.88	4.88
C106	41.76	>	5.63	5.63	37.58	>	4.88	4.88	18.86	>	11.99	11.99	18.67	>	11.16	11.16
C301	10.27	>	4.01	4.01	9.49	>	3.31	3.31	23.89	>	11.96	11.96	21.26	>	6.56	6.56
C202	11.56	>	8.47	8.47	10.93	>	9.99	9.99	29.55	>	6.52	6.52	25.97	>	4.88	4.88
C206	33.52	>	5.63	5.63	30.30	>	4.88	4.88	14.67	>	11.99	11.99	14.58	>	11.16	11.16
C103	26.81	>	8.85	8.85	25.92	>	8.85	8.85	11.18	>	4.84	4.84	10.95	>	3.28	3.28
C129	64.00	>	0.00	0.00	64.00	>	0.00	0.00	160.84	>	11.40	11.40	160.84	>	11.40	11.40
C107	40.21	>	16.14	10.51	39.00	>	18.17	11.90	19.08	>	8.88	8.88	19.70	>	8.85	8.85
C109	38.09	>	5.63	5.63	32.43	>	4.84	4.84	16.80	>	6.46	6.46	17.19	>	7.29	7.29
C401	9.02	>	4.01	4.01	8.44	>	3.31	3.31	20.40	>	9.56	9.56	18.46	>	3.31	3.31
C302	9.91	>	7.32	7.32	9.55	>	8.85	8.85	24.55	>	5.63	5.63	21.64	>	4.88	4.88
C306	25.36	>	5.63	5.63	23.15	>	4.88	4.88	10.43	<	15.30	10.43	10.43	<	11.26	10.41
C203	22.97	>	12.85	8.85	21.80	>	13.68	8.85	9.75	>	0.00	0.00	9.75	>	0.00	0.00
C229	38.41	>	0.00	0.00	38.41	>	0.00	0.00	94.12	>	11.40	11.40	92.57	>	11.40	11.40
C207	32.24	>	16.14	10.51	31.32	>	18.17	11.90	14.91	>	8.88	8.88	15.41	>	8.85	8.85
C209	30.72	>	5.63	5.63	26.32	>	4.84	4.84	13.22	>	6.46	6.46	13.41	>	7.29	7.29
C130	119.24	>	2.45	2.45	119.24	>	4.84	4.84	103.79	>	9.26	9.26	103.79	>	8.43	8.43
C117	25.92	>	8.85	8.85	26.90	>	8.85	8.85	11.18	>	4.84	4.84	10.95	>	3.28	3.28
C110	39.63	>	4.84	4.84	42.26	>	5.63	5.63	19.25	>	18.39	11.61	19.05	<	19.82	13.30
C111	16.44	>	4.01	4.01	13.47	>	3.28	3.28	28.52	>	3.28	3.28	34.93	>	5.57	5.57
C501	4.15	>	4.01	4.01	3.89	>	3.31	3.31	9.12	>	7.67	7.67	8.45	>	6.56	6.56
C402	8.67	>	7.32	7.32	8.51	<	8.85	8.50	21.20	>	5.63	5.63	18.83	>	4.88	4.88
C406	22.26	>	5.63	5.63	20.05	>	4.88	4.88	9.16	<	10.90	9.17	9.25	<	10.04	9.20
C303	20.96	>	12.85	8.85	19.57	>	13.68	8.85	9.07	>	0.00	0.00	9.07	>	0.00	0.00
C304	8.59	>	0.00	0.00	8.59	>	0.00	0.00	16.23	>	11.40	11.40	13.83	>	11.40	11.40
C307	24.10	>	16.14	10.51	23.59	>	18.17	11.90	10.69	>	8.88	8.88	11.11	>	8.85	8.85
C309	23.44	>	6.04	6.04	19.87	>	3.28	3.28	9.69	>	6.46	6.46	9.75	>	7.29	7.29
C210	32.06	>	4.84	4.84	34.22	>	4.01	4.01	14.96	<	16.10	10.47	14.85	<	18.68	12.16
C211	12.85	>	4.01	4.01	10.75	>	3.28	3.28	22.99	>	3.28	3.28	28.24	>	5.57	5.57
C230	80.26	>	4.89	2.45	77.75	>	9.68	4.84	62.99	>	4.42	4.42	60.98	>	2.45	2.45
C133	108.71	>	12.54	12.54	108.71	>	8.97	8.97	136.78	>	2.45	2.45	136.78	>	12.31	12.31
C131	131.97	>	4.84	4.84	131.97	>	2.45	2.45	102.59	>	9.26	9.26	102.59	>	8.43	8.43
C116	12.37	>	9.99	9.99	13.01	>	8.47	8.47	34.07	>	5.63	5.63	29.95	>	4.88	4.88
C217	21.81	>	13.68	13.68	23.01	>	12.85	12.85	9.75	>	0.00	0.00	9.75	>	0.00	0.00
C112	18.31	>	8.84	8.84	18.48	>	8.84	8.84	35.27	>	13.05	13.05	41.17	>	15.33	15.33
C502	3.97	<	7.32	3.97	3.93	<	6.46	3.93	9.50	>	4.01	4.01	8.63	>	4.88	4.88
C506	10.03	>	4.49	4.49	9.05	>	4.88	4.88	4.20	<	14.21	4.20	4.29	<	10.11	4.26
C403	18.33	>	12.85	8.85	17.08	>	13.68	8.85	8.07	>	0.00	0.00	8.07	>	0.00	0.00
C404	7.60	>	0.00	0.00	7.60	>	0.00	0.00	14.64	>	10.51	10.51	13.58	>	10.51	10.51
C407	20.55	>	16.14	10.51	20.15	>	18.17	11.90	9.60	>	8.88	8.88	9.94	>	8.85	8.85
C409	20.07	>	7.18	7.18	17.39	>	3.28	3.28	8.65	>	6.46	6.46	8.60	>	7.29	7.29
C310	24.31	>	3.28	3.28	25.96	>	4.01	4.01	10.68	<	17.88	10.65	10.59	<	14.99	10.59
C311	9.37	>	4.01	4.01	8.12	>	3.28	3.28	17.67	>	3.28	3.28	21.21	>	5.57	5.57
C233	65.49	>	12.54	12.54	66.52	>	8.02	8.02	87.44	>	2.45	2.45	91.27	>	12.31	12.31
C212	14.29	>	8.84	8.84	14.43	>	8.84	8.84	28.71	>	13.05	13.05	32.92	>	17.62	17.62
C305	21.35	>	4.89	2.45	16.90	>	9.68	4.84	9.82	>	4.42	4.42	6.13	>	2.45	2.45
C231	84.16	>	9.68	9.68	86.64	>	4.89	4.89	61.81	>	4.42	4.42	59.63	>	2.45	2.45
C134	108.79	>	8.02	4.01	108.79	>	12.54	6.27	136.86	>	2.45	2.45	136.86	>	12.31	12.31
C115	12.21	>	3.31	3.31	13.37	>	4.01	4.01	33.20	>	9.56	9.56	29.63	>	3.31	3.31
C216	10.92	>	8.85	8.85	11.54	>	7.32	7.32	29.52	>	6.52	6.52	25.92	>	4.88	4.88
C132	55.62	>	0.00	0.00	55.62	>	0.00	0.00	152.80	>	11.40	11.40	152.80	>	11.40	11.40
C317	19.58	>	13.68	13.68	20.97	>	12.85	12.85	9.07	>	0.00	0.00	9.07	>	0.00	0.00
C127	36.09	>	31.35	31.35	34.18	<	43.14	43.14	2679.14	>	0.00	0.00	1486.26	>	0.00	0.00
C114	11.51	>	8.84	8.84	11.51	>	8.84	8.84	24.57	>	4.84	4.84	30.84	>	5.63	5.63
C503	8.49	<	10.46	6.45	7.92	<	13.68	7.92	3.73	>	0.00	0.00	3.73	>	0.00	0.00
C504	3.59	>	0.00	0.00	3.59	>	0.00	0.00	7.10	<	10.51	7.10	6.90	<	10.51	6.67
C507	9.14	<	16.14	9.15	9.01	<	18.17	8.97	4.48	<	8.88	4.46	4.58	<	8.85	4.57
C509	8.96	>	5.57	5.57	8.07	>	3.28	3.28	4.01	<	6.46	3.85	3.95	<	7.29	3.95
C410	21.13	>	3.28	3.28	23.03	>	4.01	4.01	9.56	<	17.88	9.49	9.38	<	14.99	9.38
C411	8.29	>	4.01	4.01	7.42	>	3.28	3.28	16.16	>	3.28	3.28	18.21	>	5.16	5.16
C308	7.79	<	12.54	12.54	9.91	>	8.02	8.02	16.19	>	2.45	2.45	23.96	>	9.50	9.50
C312	10.25	>	8.84	8.84	10.35	>	8.84	8.84	21.86	>	8.46	8.46	24.78	>	15.33	15.33
C104	6.88	>	0.00	0.00	6.88	>	0.00	0.00	14.31	>	0.00	0.00	8.54	>	0.00	0.00
C105	23.02	>	0.00	0.00	13.38	>	0.00	0.00	13.15	>	0.00	0.00	3.03	>	0.00	0.00
C227	33.94	>	31.35	31.35	32.71	<	43.14	43.14	1740.94	>	0.00	0.00	1229.50	>	0.00	0.00
C214	10.13	>	8.84	8.84	10.13	>	8.84	8.84	20.94	>	4.84	4.84	26.36	>	5.63	5.63
C405	18.06	>	4.89	2.45	15.14	>	9.68	4.84	8.47	>	4.42	4.42	6.08	>	4.84	4.84
C319	16.99	>	9.68	9.68	21.42	>	4.89	4.89	9.89	>	4.42	4.42	6.05	>	4.84	4.84

COLUMN NO	(-X) ∑Mc	∑Mb	> ∑Mb	(+X) ∑Mc	∑Mb	> ∑Mb	(-Y) ∑Mc	∑Mb	> ∑Mb	(+Y) ∑Mc	∑Mb	> ∑Mb
C524	10.50 >	4.01	4.01	9.61 >	3.28	3.28	4.45 <	17.88	4.40	4.34 <	14.99	4.34
	∑Mb=	1081.98		∑Mb=	1117.22		∑Mb=	871.47		∑Mb=	960.05	

COLUMNS r CAPACITY RATIO

COLUMN	dir	N	V	N/(Ac.fc)	V/(Ac.fct)	Md	Mr	r	Damage Limit
CZ01	-X	58.20	2.76	0.32	0.15	2.12	6.82	0.31	Immediate Occupancy
	+X	40.13	2.54	0.22	0.14	2.12	6.30	0.34	Immediate Occupancy
Conf.✓	-Y	58.00	8.23	0.32	0.45	15.31	17.02	0.90	Immediate Occupancy
	+Y	37.21	6.58	0.21	0.36	15.31	15.23	1.01	Immediate Occupancy
CZ02	-X	52.22	2.86	0.29	0.16	2.74	6.68	0.41	Immediate Occupancy
	+X	42.53	2.79	0.24	0.15	2.74	6.43	0.43	Immediate Occupancy
Conf.✓	-Y	67.60	7.41	0.38	0.41	11.66	17.38	0.67	Immediate Occupancy
	+Y	39.28	6.59	0.22	0.36	11.66	15.48	0.75	Immediate Occupancy
CZ03	-X	35.11	6.57	0.20	0.36	9.90	14.96	0.66	Immediate Occupancy
	+X	31.60	6.40	0.18	0.35	9.90	14.53	0.68	Immediate Occupancy
Conf.✓	-Y	37.35	3.12	0.21	0.17	3.33	6.15	0.54	Immediate Occupancy
	+Y	33.04	2.81	0.18	0.15	3.33	5.92	0.56	Immediate Occupancy
CZ04	-X	4.76	1.18	0.03	0.07	0.00	3.55	0.00	Immediate Occupancy
	+X	4.76	1.18	0.03	0.07	0.00	3.55	0.00	Immediate Occupancy
Conf.✓	-Y	-3.56	2.48	-0.02	0.14	0.00	7.44	0.00	Immediate Occupancy
	+Y	-16.77	1.40	-0.09	0.08	0.00	4.20	0.00	Immediate Occupancy
CZ05	-X	15.46	4.60	0.07	0.21	0.00	13.81	0.00	Immediate Occupancy
	+X	-7.93	2.68	-0.04	0.12	0.00	8.05	0.00	Immediate Occupancy
Conf.✓	-Y	21.46	2.37	0.10	0.11	0.00	7.10	0.00	Immediate Occupancy
	+Y	-26.58	0.54	-0.12	0.02	0.00	1.61	0.00	Immediate Occupancy
CZ06	-X	78.37	8.63	0.36	0.40	22.68	21.37	1.06	Immediate Occupancy
	+X	50.51	7.84	0.23	0.36	22.68	19.42	1.17	Immediate Occupancy
Conf.✓	-Y	65.82	4.28	0.30	0.20	7.17	9.66	0.74	Immediate Occupancy
	+Y	62.70	4.21	0.29	0.19	7.17	9.56	0.75	Immediate Occupancy
CZ07	-X	66.21	9.11	0.31	0.42	26.92	20.66	1.30	Immediate Occupancy
	+X	59.22	9.00	0.27	0.41	26.92	20.13	1.34	Immediate Occupancy
Conf.✓	-Y	68.57	4.25	0.32	0.19	6.50	9.75	0.67	Immediate Occupancy
	+Y	81.03	4.36	0.38	0.20	6.50	10.04	0.65	Immediate Occupancy
CZ08	-X	-13.63	1.03	-0.06	0.05	0.00	3.09	0.00	Immediate Occupancy
	+X	21.23	2.36	0.10	0.11	0.00	7.07	0.00	Immediate Occupancy
Conf.✓	-Y	-16.23	2.00	-0.08	0.09	0.00	6.01	0.00	Immediate Occupancy
	+Y	36.11	5.87	0.17	0.27	0.00	17.60	0.00	Immediate Occupancy
CZ09	-X	53.58	8.02	0.25	0.37	34.23	19.70	1.74	Immediate Occupancy
	+X	28.79	6.79	0.13	0.31	34.23	16.67	2.05	Immediate Occupancy
Conf.✓	-Y	42.27	3.59	0.20	0.16	7.57	8.63	0.88	Immediate Occupancy
	+Y	46.22	3.70	0.21	0.17	7.57	8.87	0.85	Immediate Occupancy
CZ10	-X	61.66	8.27	0.29	0.38	34.57	20.32	1.70	Immediate Occupancy
	+X	86.46	8.74	0.40	0.40	34.57	21.41	1.61	Immediate Occupancy
Conf.✓	-Y	72.12	7.89	0.33	0.36	6.00	9.87	0.61	Immediate Occupancy
	+Y	68.45	7.80	0.32	0.36	6.00	9.75	0.62	Immediate Occupancy
CZ11	-X	39.58	3.79	0.18	0.17	15.08	8.47	1.78	Immediate Occupancy
	+X	20.30	3.12	0.09	0.14	15.08	6.97	2.16	Immediate Occupancy
Conf.✓	-Y	19.21	6.39	0.09	0.29	16.15	14.73	1.10	Immediate Occupancy
	+Y	39.16	8.03	0.18	0.37	16.15	17.98	0.90	Immediate Occupancy
CZ12	-X	58.17	4.78	0.27	0.22	17.59	9.42	1.87	Immediate Occupancy
	+X	60.19	4.81	0.28	0.22	17.59	9.48	1.85	Immediate Occupancy
Conf.✓	-Y	40.13	8.76	0.19	0.40	12.27	18.11	0.68	Immediate Occupancy
	+Y	72.86	10.26	0.34	0.47	12.27	21.17	0.58	Immediate Occupancy
CZ13	-X	2.75	4.52	0.01	0.18	18.66	5.65	3.30	Life Safety
	+X	2.77	4.52	0.01	0.18	18.66	5.65	3.30	Life Safety
Conf.✓	-Y	55.39	10.99	0.22	0.43	11.72	26.55	0.44	Immediate Occupancy
	+Y	12.48	7.41	0.05	0.29	11.72	17.42	0.67	Immediate Occupancy
CZ14	-X	39.49	3.75	0.22	0.21	11.50	6.26	1.84	Immediate Occupancy
	+X	39.47	3.75	0.22	0.21	11.50	6.26	1.84	Immediate Occupancy
Conf.✓	-Y	24.42	5.59	0.14	0.31	9.55	13.63	0.70	Immediate Occupancy
	+Y	67.33	7.11	0.37	0.39	9.55	17.38	0.55	Immediate Occupancy

COLUMN	dir	N	V	N/(Ac.fc)	V/(Ac.fct)	Md	Mr	r	Damage Limit
C121	-X	44.14	10.41	0.25	0.57	45.92	15.97	2.87	Life Safety
	+X	50.55	9.25	0.28	0.51	45.92	16.46	2.79	Life Safety
Conf.✓	-Y	54.78	4.31	0.30	0.24	13.15	6.74	1.95	Immediate Occupancy
	+Y	65.16	4.29	0.36	0.24	13.15	6.98	1.88	Immediate Occupancy
C122	-X	16.21	0.00	0.09	0.00	2.22	4.60	0.48	Immediate Occupancy
	+X	-12.44	0.00	-0.07	0.00	2.22	1.97	1.13	Immediate Occupancy
Conf.✓	-Y	-16.13	0.00	-0.09	0.00	10.78	4.35	2.48	Immediate Occupancy
	+Y	26.67	0.00	0.15	0.00	10.78	13.91	0.77	Immediate Occupancy
C123	-X	24.03	2.79	0.11	0.13	38.60	15.92	2.42	Immediate Occupancy
	+X	44.06	3.43	0.20	0.16	38.60	18.60	2.07	Immediate Occupancy
Conf.✓	-Y	30.74	4.21	0.14	0.19	21.09	7.93	2.66	Immediate Occupancy
	+Y	39.81	4.10	0.18	0.19	21.09	8.48	2.49	Immediate Occupancy
C124	-X	70.51	3.01	0.33	0.14	40.96	20.99	1.95	Immediate Occupancy
	+X	50.47	2.91	0.23	0.13	40.96	19.42	2.11	Immediate Occupancy
Conf.✓	-Y	57.64	7.52	0.27	0.34	17.26	9.40	1.84	Immediate Occupancy
	+Y	54.09	7.43	0.25	0.34	17.26	9.29	1.86	Immediate Occupancy
C125	-X	16.64	1.57	0.08	0.07	19.30	6.55	2.95	Immediate Occupancy
	+X	32.08	2.13	0.15	0.10	19.30	8.01	2.41	Immediate Occupancy
Conf.✓	-Y	16.20	1.80	0.07	0.08	27.47	13.99	1.96	Immediate Occupancy
	+Y	31.82	3.06	0.15	0.14	27.47	17.05	1.61	Immediate Occupancy
C126	-X	47.46	3.88	0.26	0.21	20.82	6.57	3.17	Life Safety
	+X	45.41	3.88	0.25	0.21	20.82	6.53	3.19	Life Safety
Conf.✓	-Y	31.10	7.66	0.17	0.42	25.24	14.46	1.74	Immediate Occupancy
	+Y	56.85	9.58	0.32	0.53	25.24	16.93	1.49	Immediate Occupancy
C201	-X	34.66	1.47	0.23	0.10	6.13	5.41	1.13	Immediate Occupancy
	+X	24.48	1.21	0.16	0.08	6.13	4.94	1.24	Immediate Occupancy
Conf.✓	-Y	34.74	3.23	0.23	0.21	10.42	12.61	0.83	Immediate Occupancy
	+Y	22.29	1.57	0.15	0.10	10.42	11.25	0.93	Immediate Occupancy
C202	-X	30.05	2.82	0.20	0.19	9.16	5.20	1.76	Immediate Occupancy
	+X	25.13	3.97	0.17	0.26	9.16	4.97	1.84	Immediate Occupancy
Conf.✓	-Y	39.80	1.98	0.27	0.13	14.10	12.84	1.10	Immediate Occupancy
	+Y	23.93	1.61	0.16	0.11	14.10	11.44	1.23	Immediate Occupancy
C203	-X	21.18	4.35	0.14	0.29	16.50	11.12	1.48	Immediate Occupancy
	+X	17.34	4.63	0.12	0.31	16.50	10.41	1.58	Immediate Occupancy
Conf.✓	-Y	19.91	0.00	0.13	0.00	0.52	4.72	0.11	Immediate Occupancy
	+Y	19.91	0.00	0.13	0.00	0.52	4.72	0.11	Immediate Occupancy
C204	-X	16.81	0.00	0.11	0.00	2.11	4.57	0.46	Immediate Occupancy
	+X	16.81	0.00	0.11	0.00	2.11	4.57	0.46	Immediate Occupancy
Conf.✓	-Y	8.91	5.47	0.06	0.36	20.06	8.70	2.31	Immediate Occupancy
	+Y	1.30	4.85	0.01	0.32	20.06	7.15	2.81	Immediate Occupancy
C205	-X	24.94	3.05	0.17	0.20	10.26	11.56	0.89	Immediate Occupancy
	+X	10.61	5.79	0.07	0.38	10.26	9.04	1.13	Immediate Occupancy
Conf.✓	-Y	29.96	2.52	0.20	0.17	10.83	5.20	2.08	Immediate Occupancy
	+Y	0.66	1.39	0.00	0.09	10.83	3.18	3.40	Life Safety
C206	-X	46.25	1.91	0.31	0.13	16.88	13.14	1.28	Immediate Occupancy
	+X	30.07	1.65	0.20	0.11	16.88	12.15	1.39	Immediate Occupancy
Conf.✓	-Y	37.27	3.81	0.25	0.25	11.50	5.47	2.10	Immediate Occupancy
	+Y	37.52	3.70	0.25	0.24	11.50	5.47	2.10	Immediate Occupancy
C207	-X	36.62	5.50	0.24	0.36	26.92	12.70	2.12	Immediate Occupancy
	+X	32.64	6.20	0.22	0.41	26.92	12.45	2.16	Immediate Occupancy
Conf.✓	-Y	41.95	2.93	0.28	0.19	10.37	5.58	1.86	Immediate Occupancy
	+Y	49.64	2.92	0.33	0.19	10.37	5.75	1.80	Immediate Occupancy
C208	-X	12.98	3.45	0.09	0.23	7.80	4.32	1.81	Immediate Occupancy
	+X	33.14	3.55	0.22	0.23	7.80	5.35	1.46	Immediate Occupancy
Conf.✓	-Y	10.39	1.54	0.07	0.10	11.51	9.00	1.28	Immediate Occupancy
	+Y	39.70	7.09	0.26	0.47	11.51	12.84	0.90	Immediate Occupancy
C209	-X	31.63	2.09	0.21	0.14	20.72	12.33	1.68	Immediate Occupancy
	+X	18.01	1.40	0.12	0.09	20.72	10.55	1.96	Immediate Occupancy
Conf.✓	-Y	26.86	2.09	0.18	0.14	11.97	5.05	2.37	Immediate Occupancy
	+Y	27.73	2.36	0.18	0.16	11.97	5.09	2.35	Immediate Occupancy
C210	-X	37.72	1.40	0.25	0.09	21.82	12.75	1.71	Immediate Occupancy
	+X	51.35	1.42	0.34	0.09	21.82	13.37	1.63	Immediate Occupancy
Conf.✓	-Y	42.01	4.46	0.28	0.29	9.60	5.58	1.72	Immediate Occupancy
	+Y	40.99	4.44	0.27	0.29	9.60	5.55	1.73	Immediate Occupancy

COLUMN	dir	N	V	N/(Ac.fc)	V/(Ac.fct)	Md	Mr	r	Damage Limit
C301	-X	22.98	1.59	0.15	0.11	6.77	4.87	1.39	Immediate Occupancy
	+X	16.46	1.32	0.11	0.09	6.77	4.56	1.49	Immediate Occupancy
Conf.✓	-Y	22.53	4.15	0.15	0.27	9.84	11.28	0.87	Immediate Occupancy
	+Y	15.37	1.99	0.10	0.13	9.84	10.01	0.98	Immediate Occupancy
C302	-X	19.55	3.47	0.13	0.23	9.94	4.70	2.11	Immediate Occupancy
	+X	16.91	3.66	0.11	0.24	9.94	4.58	2.17	Immediate Occupancy
Conf.✓	-Y	26.25	2.20	0.17	0.15	13.86	11.71	1.18	Immediate Occupancy
	+Y	16.30	1.90	0.11	0.13	13.86	10.20	1.36	Immediate Occupancy
C303	-X	14.53	5.13	0.10	0.34	18.34	9.84	1.86	Immediate Occupancy
	+X	11.17	5.46	0.07	0.36	18.34	9.16	2.00	Immediate Occupancy
Conf.✓	-Y	13.29	0.00	0.09	0.00	0.94	4.35	0.22	Immediate Occupancy
	+Y	13.29	0.00	0.09	0.00	0.94	4.35	0.22	Immediate Occupancy
C304	-X	9.68	0.00	0.06	0.00	1.06	4.01	0.26	Immediate Occupancy
	+X	9.68	0.00	0.06	0.00	1.06	4.01	0.26	Immediate Occupancy
Conf.✓	-Y	3.19	4.58	0.02	0.30	23.48	7.54	3.12	Life Safety
	+Y	-1.02	4.58	-0.01	0.30	23.48	6.68	3.52	Life Safety
C305	-X	14.31	2.20	0.10	0.15	6.52	9.80	0.67	Immediate Occupancy
	+X	4.75	4.36	0.03	0.29	6.52	7.85	0.83	Immediate Occupancy
Conf.✓	-Y	17.89	1.89	0.12	0.12	14.52	4.62	3.14	Life Safety
	+Y	-1.86	1.51	-0.01	0.10	14.52	2.95	4.92	Life Safety
C306	-X	30.74	2.34	0.20	0.15	17.73	12.23	1.45	Immediate Occupancy
	+X	20.23	2.03	0.13	0.13	17.73	11.00	1.61	Immediate Occupancy
Conf.✓	-Y	24.96	3.97	0.17	0.26	11.53	4.96	2.32	Immediate Occupancy
	+Y	24.79	3.96	0.17	0.26	11.53	4.95	2.33	Immediate Occupancy
C307	-X	23.66	6.62	0.16	0.44	27.11	11.41	2.38	Immediate Occupancy
	+X	21.34	8.08	0.14	0.53	27.11	11.14	2.43	Immediate Occupancy
Conf.✓	-Y	28.30	3.85	0.19	0.25	10.09	5.12	1.97	Immediate Occupancy
	+Y	33.26	3.94	0.22	0.26	10.09	5.35	1.88	Immediate Occupancy
C308	-X	3.79	2.78	0.03	0.18	9.99	3.47	2.88	Immediate Occupancy
	+X	16.62	3.63	0.11	0.24	9.99	4.56	2.19	Immediate Occupancy
Conf.✓	-Y	1.46	1.59	0.01	0.10	6.90	7.18	0.96	Immediate Occupancy
	+Y	21.21	3.96	0.14	0.26	6.90	11.12	0.62	Immediate Occupancy
C309	-X	21.09	2.84	0.14	0.19	20.32	11.11	1.83	Immediate Occupancy
	+X	11.95	1.40	0.08	0.09	20.32	9.32	2.18	Immediate Occupancy
Conf.✓	-Y	18.30	2.57	0.12	0.17	11.82	4.64	2.54	Immediate Occupancy
	+Y	18.51	3.40	0.12	0.22	11.82	4.65	2.54	Immediate Occupancy
C310	-X	25.05	1.39	0.17	0.09	21.39	11.57	1.85	Immediate Occupancy
	+X	34.19	1.70	0.23	0.11	21.39	12.59	1.70	Immediate Occupancy
Conf.✓	-Y	28.03	4.09	0.19	0.27	9.57	5.11	1.87	Immediate Occupancy
	+Y	26.61	4.03	0.18	0.27	9.57	5.04	1.90	Immediate Occupancy
C311	-X	15.23	1.68	0.10	0.11	11.84	4.50	2.63	Immediate Occupancy
	+X	8.31	1.38	0.06	0.09	11.84	3.89	3.05	Life Safety
Conf.✓	-Y	7.75	1.29	0.05	0.08	11.68	8.46	1.38	Immediate Occupancy
	+Y	14.86	2.12	0.10	0.14	11.68	9.91	1.18	Immediate Occupancy
C312	-X	22.59	3.88	0.15	0.26	17.54	4.85	3.62	Life Safety
	+X	23.95	3.93	0.16	0.26	17.54	4.91	3.57	Life Safety
Conf.✓	-Y	16.86	3.35	0.11	0.22	12.48	10.32	1.21	Immediate Occupancy
	+Y	27.49	8.04	0.18	0.53	12.48	11.85	1.05	Immediate Occupancy
C313	-X	1.41	2.60	0.01	0.17	20.04	3.25	6.17	Collapse Prevention
	+X	1.42	2.60	0.01	0.17	20.04	3.25	6.16	Collapse Prevention
Conf.✓	-Y	20.94	1.45	0.14	0.10	15.85	11.09	1.43	Immediate Occupancy
	+Y	3.56	1.76	0.02	0.12	15.85	7.61	2.08	Immediate Occupancy
C314	-X	15.68	3.62	0.10	0.24	17.15	4.52	3.79	Life Safety
	+X	15.68	3.62	0.10	0.24	17.15	4.52	3.79	Life Safety
Conf.✓	-Y	10.38	1.88	0.07	0.12	16.66	9.00	1.85	Immediate Occupancy
	+Y	27.76	2.97	0.19	0.20	16.66	11.88	1.40	Immediate Occupancy
C315	-X	16.35	1.32	0.11	0.09	6.80	4.55	1.49	Immediate Occupancy
	+X	22.86	1.60	0.15	0.11	6.80	4.86	1.40	Immediate Occupancy
Conf.✓	-Y	22.74	3.84	0.15	0.25	10.61	11.30	0.94	Immediate Occupancy
	+Y	15.22	1.39	0.10	0.09	10.61	9.98	1.06	Immediate Occupancy
C316	-X	16.96	3.66	0.11	0.24	9.95	4.58	2.17	Immediate Occupancy
	+X	19.60	3.47	0.13	0.23	9.95	4.71	2.11	Immediate Occupancy
Conf.✓	-Y	26.14	2.26	0.17	0.15	13.69	11.69	1.17	Immediate Occupancy
	+Y	16.19	1.96	0.11	0.13	13.69	10.18	1.35	Immediate Occupancy

COLUMN	dir	N	V	N/(Ac.fc)	V/(Ac.fct)	Md	Mr	r	Damage Limit
C407	-X	11.09	6.72	0.07	0.44	28.03	9.14	3.07	Life Safety
	+X	10.42	7.21	0.07	0.48	28.03	9.01	3.11	Life Safety
Conf.✓	-Y	14.79	3.58	0.10	0.24	9.48	4.48	2.12	Immediate Occupancy
	+Y	17.03	3.67	0.11	0.24	9.48	4.58	2.07	Immediate Occupancy
C408	-X	2.00	2.64	0.01	0.17	8.87	3.30	2.68	Immediate Occupancy
	+X	7.49	3.05	0.05	0.20	8.87	3.81	2.33	Immediate Occupancy
Conf.✓	-Y	0.71	1.75	0.00	0.12	3.58	7.03	0.51	Immediate Occupancy
	+Y	8.42	4.11	0.06	0.27	3.58	8.60	0.42	Immediate Occupancy
C409	-X	10.19	3.43	0.07	0.23	19.17	8.96	2.14	Immediate Occupancy
	+X	5.84	1.86	0.04	0.12	19.17	8.07	2.37	Immediate Occupancy
Conf.✓	-Y	9.65	2.98	0.06	0.20	11.24	4.01	2.80	Immediate Occupancy
	+Y	8.95	3.16	0.06	0.21	11.24	3.95	2.85	Immediate Occupancy
C410	-X	13.14	1.86	0.09	0.12	20.39	9.56	2.13	Immediate Occupancy
	+X	17.49	2.28	0.12	0.15	20.39	10.45	1.95	Immediate Occupancy
Conf.✓	-Y	14.44	3.56	0.10	0.24	9.09	4.45	2.04	Immediate Occupancy
	+Y	13.26	3.47	0.09	0.23	9.09	4.34	2.09	Immediate Occupancy
C411	-X	7.27	2.20	0.05	0.15	10.16	3.79	2.68	Immediate Occupancy
	+X	4.43	1.97	0.03	0.13	10.16	3.53	2.88	Immediate Occupancy
Conf.✓	-Y	3.98	2.10	0.03	0.14	13.79	7.70	1.79	Immediate Occupancy
	+Y	6.97	2.85	0.05	0.19	13.79	8.31	1.66	Immediate Occupancy
C412	-X	10.82	3.29	0.07	0.22	14.62	4.12	3.55	Life Safety
	+X	11.90	3.37	0.08	0.22	14.62	4.22	3.47	Life Safety
Conf.✓	-Y	8.96	5.34	0.06	0.35	15.64	8.71	1.80	Immediate Occupancy
	+Y	13.15	7.65	0.09	0.51	15.64	9.56	1.64	Immediate Occupancy
C413	-X	1.86	2.63	0.01	0.17	17.30	3.29	5.25	Life Safety
	+X	1.87	2.63	0.01	0.17	17.30	3.29	5.25	Life Safety
Conf.✓	-Y	9.19	2.46	0.06	0.16	21.09	8.76	2.41	Immediate Occupancy
	+Y	1.16	2.96	0.01	0.20	21.09	7.12	2.96	Immediate Occupancy
C414	-X	7.92	3.08	0.05	0.20	14.90	3.85	3.87	Life Safety
	+X	7.92	3.08	0.05	0.20	14.90	3.85	3.87	Life Safety
Conf.✓	-Y	5.19	2.95	0.03	0.20	22.04	7.94	2.77	Immediate Occupancy
	+Y	13.22	4.11	0.09	0.27	22.04	9.58	2.30	Immediate Occupancy
C415	-X	8.27	2.29	0.06	0.15	8.23	3.88	2.12	Immediate Occupancy
	+X	11.16	2.55	0.07	0.17	8.23	4.15	1.98	Immediate Occupancy
Conf.✓	-Y	11.06	5.41	0.07	0.36	12.81	9.14	1.40	Immediate Occupancy
	+Y	7.56	3.23	0.05	0.21	12.81	8.42	1.52	Immediate Occupancy
C416	-X	8.85	3.15	0.06	0.21	10.58	3.94	2.69	Immediate Occupancy
	+X	9.22	3.18	0.06	0.21	10.58	3.97	2.66	Immediate Occupancy
Conf.✓	-Y	12.78	2.72	0.09	0.18	16.61	9.49	1.75	Immediate Occupancy
	+Y	8.52	2.91	0.06	0.19	16.61	8.62	1.93	Immediate Occupancy
C417	-X	5.08	6.30	0.03	0.42	22.53	7.92	2.85	Immediate Occupancy
	+X	7.88	6.34	0.05	0.42	22.53	8.49	2.65	Immediate Occupancy
Conf.✓	-Y	6.56	0.00	0.04	0.00	1.29	3.73	0.35	Immediate Occupancy
	+Y	6.56	0.00	0.04	0.00	1.29	3.73	0.35	Immediate Occupancy
C418	-X	5.03	0.00	0.03	0.00	0.42	3.58	0.12	Immediate Occupancy
	+X	5.03	0.00	0.03	0.00	0.42	3.58	0.12	Immediate Occupancy
Conf.✓	-Y	0.90	4.86	0.01	0.32	24.11	7.07	3.41	Life Safety
	+Y	-0.07	4.78	0.00	0.32	24.11	6.87	3.51	Life Safety
C419	-X	2.06	4.13	0.01	0.27	3.39	7.31	0.46	Immediate Occupancy
	+X	6.83	2.57	0.05	0.17	3.39	8.28	0.41	Immediate Occupancy
Conf.✓	-Y	7.86	2.43	0.05	0.16	15.49	3.85	4.03	Life Safety
	+Y	0.17	1.95	0.00	0.13	15.49	3.14	4.94	Life Safety
C420	-X	10.76	2.87	0.06	0.16	22.00	9.05	2.43	Immediate Occupancy
	+X	15.87	3.31	0.09	0.18	22.00	10.08	2.18	Immediate Occupancy
Conf.✓	-Y	12.22	4.22	0.07	0.23	15.60	5.28	2.96	Immediate Occupancy
	+Y	13.11	4.30	0.07	0.24	15.60	5.38	2.90	Immediate Occupancy
C421	-X	10.00	7.14	0.07	0.47	28.33	8.92	3.18	Life Safety
	+X	10.59	6.68	0.07	0.44	28.33	9.04	3.13	Life Safety
Conf.✓	-Y	14.63	3.58	0.10	0.24	9.29	4.47	2.08	Immediate Occupancy
	+Y	16.86	3.66	0.11	0.24	9.29	4.58	2.03	Immediate Occupancy
C422	-X	7.66	3.06	0.05	0.20	8.81	3.83	2.30	Immediate Occupancy
	+X	1.96	2.64	0.01	0.17	8.81	3.30	2.67	Immediate Occupancy
Conf.✓	-Y	0.80	1.64	0.01	0.11	3.55	7.05	0.50	Immediate Occupancy
	+Y	8.49	3.89	0.06	0.26	3.55	8.61	0.41	Immediate Occupancy

BEAMS r CAPACITY RATIO

BEAM	dir	V/(Ac.fct)	ρ-ρ'/ρbi	ri=Mdi/Mri	Dmg.	V/(Ac.fct)	ρ-ρ'/ρbj	rj=Mdj/Mrj	Dmg.
BZ01	-X	0.0510	0.0199	9.73/4.01=2.43	MH	0.0125	-0.0511	4.25/3.31=1.28	MH
Conf.✓	+X	0.0099	-0.0199	6.7/3.31=2.02	MH	0.0536	0.0511	9.02/5.16=1.75	MH
BZ02	-X	0.0508	0.0087	8.39/5.16=1.63	MH	0.0205	0.0225	9.23/4.84=1.91	MH
Conf.✓	+X	0.0152	-0.0087	5.45/4.84=1.13	MH	0.0455	-0.0225	11.39/4.01=2.84	MH
BZ04	-X	0.0764	0.0217	36.42/5.63=6.47	BH	0.0156	-0.0217	26.75/4.88=5.49	BH
Conf.✓	+X	0.0156	-0.0217	29.6/4.88=6.07	BH	0.0764	0.0217	34.67/5.63=6.16	BH
BZ05	-X	0.0930	-0.0173	32.08/5.63=5.7	BH	0.0722	0.0485	28.2/6.27=4.5	BH
Conf.✓	+X	0.0156	0.0173	26.33/6.27=4.2	BH	0.0052	-0.0485	36.94/4.49=8.23	IH
BZ06	-X	0.0695	0.0217	46.14/5.63=8.19	IH	0.0091	-0.0217	39.92/4.84=8.25	IH
Conf.✓	+X	0.0090	-0.0217	38.8/4.84=8.02	IH	0.0696	0.0217	44.63/5.63=7.92	IH
BZ07	-X	0.1254	0.1732	3.26/12.8=0.25	MH	0.1031	-0.3465	0.37/6.52=0.06	MH
Conf.✓	+X	0.0279	-0.1732	2.74/6.52=0.42	MH	0.0502	0.3465	8.97/18.31=0.49	MH
BZ07	-X	0.1596	0.3465	22.11/18.31=1.21	MH	0.1385	-0.3465	26.84/2.94=9.12	IH
Conf.✓	+X	0.0907	-0.3465	16.74/6.52=2.57	MH	0.1118	0.3465	26.8/8.27=3.24	BH
BZ08	-X	0.0436	0.0199	30.18/4.01=7.53	IH	0.0046	-0.0624	22.93/3.28=7.0	IH
Conf.✓	+X	0.0005	-0.0199	27.01/3.28=8.25	IH	0.0477	0.0624	26.85/5.57=4.82	BH
BZ09	-X	0.0472	0.0624	19.63/5.57=3.53	BH	0.0071	-0.0624	12.16/3.28=3.71	BH
Conf.✓	+X	0.0067	-0.0624	15.39/3.28=4.7	BH	0.0476	0.0624	17.17/5.57=3.08	BH
BZ10	-Y	0.0802	0.1732	21.78/9.56=2.28	MH	0.0329	-0.1490	6.1/3.31=1.84	MH
Conf.✓	+Y	0.0358	0.1732	7.67/3.31=2.31	MH	0.0772	-0.1490	16.85/8.71=1.93	MH
BZ11	-Y	0.0545	0.1715	14.92/8.67=1.72	MH	0.0230	-0.0424	11.16/2.45=4.56	BH
Conf.✓	+Y	0.0064	0.1715	10.85/2.45=4.43	BH	0.0379	-0.0424	13.18/4.01=3.29	BH
BZ12	-Y	0.0433	0.0199	15.58/4.01=3.89	BH	0.0023	-0.0624	18.53/3.28=5.66	BH
Conf.✓	+Y	0.0016	0.0199	13.43/3.28=4.1	BH	0.0471	-0.0624	23.29/5.57=4.18	BH
BZ13	-Y	0.0785	0.0217	27.91/5.63=4.95	BH	0.0212	-0.0459	21.32/4.88=4.37	BH
Conf.✓	+Y	0.0150	0.0217	23.76/4.88=4.87	BH	0.0847	-0.0459	32.68/6.52=5.01	BH
BZ14	-Y	0.0729	0.0459	29.66/6.52=4.55	BH	0.0322	0.0225	16.49/4.88=3.38	BH
Conf.✓	+Y	0.0210	0.0459	24.26/4.88=4.98	BH	0.0617	0.0225	16.59/4.01=4.14	BH
BZ15	-Y	0.0577	-0.0225	9.49/4.01=2.37	MH	0.0036	-0.0528	7.28/4.84=1.5	MH
Conf.✓	+Y	0.0134	-0.0225	8.43/4.84=1.74	MH	0.0674	-0.0528	12.79/6.78=1.89	MH
BZ16	-Y	0.1084	0.0069	15.94/6.78=2.35	MH	0.0880	-0.0312	15.94/6.52=2.44	MH
Conf.✓	+Y	0.0256	0.0069	8.72/6.52=1.34	MH	0.0051	-0.0312	25.58/7.67=3.34	BH
BZ17	-Y	0.0706	0.0424	9.87/4.84=2.04	MH	0.0270	-0.0736	8.96/3.28=2.73	MH
Conf.✓	+Y	0.0257	0.0424	7.15/3.28=2.18	MH	0.0719	-0.0736	19.58/5.98=3.27	BH
BZ18	-Y	0.0654	0.0961	34.74/5.98=5.81	BH	0.0276	-0.2824	28.93/2.45=11.82	GB
Conf.✓	+Y	0.0588	0.0961	31.82/2.45=13.0	GB	0.0966	-0.2824	29.26/12.31=2.38	MH
BZ21	-Y	0.0590	-0.0225	25.86/4.01=6.45	BH	0.0222	-0.0217	20.08/4.84=4.15	BH
Conf.✓	+Y	0.0302	-0.0225	23.75/4.84=4.91	BH	0.0670	-0.0217	22.7/5.63=4.03	BH
BZ22	-X	0.0536	0.0511	9.2/5.16=1.79	MH	0.0099	-0.0199	7.26/3.31=2.19	MH
Conf.✓	+X	0.0125	-0.0511	4.51/3.31=1.36	MH	0.0510	0.0199	10.46/4.01=2.61	MH
BZ23	-X	0.0455	-0.0225	11.32/4.01=2.82	MH	0.0152	-0.0087	5.33/4.84=1.1	MH
Conf.✓	+X	0.0205	0.0225	9.23/4.84=1.91	MH	0.0508	0.0087	8.31/5.16=1.61	MH
BZ25	-X	0.0764	0.0217	32.3/5.63=5.73	BH	0.0156	-0.0217	26.76/4.88=5.49	BH
Conf.✓	+X	0.0156	-0.0217	23.6/4.88=4.84	BH	0.0764	0.0217	31.93/5.63=5.67	BH
BZ26	-X	0.0902	-0.0615	36.33/4.01=9.06	IH	0.0566	0.0173	25.1/6.27=4.0	BH
Conf.✓	+X	0.0105	0.0615	27.76/6.27=4.43	BH	0.0231	-0.0173	31.13/5.63=5.53	BH
BZ27	-X	0.0695	0.0217	44.22/5.63=7.85	IH	0.0091	-0.0217	38.28/4.84=7.91	IH
Conf.✓	+X	0.0090	-0.0217	39.44/4.84=8.15	IH	0.0696	0.0217	45.39/5.63=8.06	IH
BZ28	-X	0.1118	0.3465	26.78/8.26=3.24	BH	0.0906	-0.3465	16.72/6.52=2.56	MH
Conf.✓	+X	0.1385	-0.3465	26.82/2.94=9.11	IH	0.1596	0.3465	22.09/18.31=1.21	MH
BZ28	-X	0.1459	0.3465	9.01/18.31=0.49	MH	0.1041	-0.1732	2.56/6.52=0.39	MH
Conf.✓	+X	0.0127	-0.3465	0.39/6.52=0.06	MH	0.0546	0.1732	3.11/12.8=0.24	MH
BZ29	-X	0.0477	0.0624	22.72/5.57=4.08	BH	0.0005	-0.0199	24.99/3.28=7.63	IH
Conf.✓	+X	0.0046	-0.0624	19.24/3.28=5.87	BH	0.0436	0.0199	28.12/4.01=7.01	IH

BEAM	dir	V/(Ac.fct)	ρ-ρ'/ρbi	ri=Mdi/Mri	Dmg.	V/(Ac.fct)	ρ-ρ'/ρbj	rj=Mdj/Mrj	Dmg.
BZ30	-X	0.0476	0.0624	15.54/5.57=2.79	MH	0.0067	-0.0624	11.86/3.28=3.62	BH
Conf.✓	+X	0.0071	-0.0624	10.6/3.28=3.24	BH	0.0472	0.0624	16.59/5.57=2.98	MH
BZ31	-Y	0.0802	0.1732	22.84/9.56=2.39	MH	0.0329	-0.1490	6.02/3.31=1.82	MH
Conf.✓	+Y	0.0358	0.1732	9.14/3.31=2.76	MH	0.0772	-0.1490	16.74/8.71=1.92	MH
BZ32	-Y	0.0545	0.1715	13.65/8.67=1.57	MH	0.0230	-0.0424	10.68/2.45=4.37	BH
Conf.✓	+Y	0.0064	0.1715	9.03/2.45=3.69	BH	0.0379	-0.0424	12.5/4.01=3.12	BH
BZ33	-Y	0.0433	0.0199	15.75/4.01=3.93	BH	0.0023	-0.0624	18.54/3.28=5.66	BH
Conf.✓	+Y	0.0016	0.0199	13.82/3.28=4.22	BH	0.0471	-0.0624	23.5/5.57=4.22	BH
BZ34	-Y	0.0785	0.0217	28.09/5.63=4.99	BH	0.0212	-0.0459	21.52/4.88=4.41	BH
Conf.✓	+Y	0.0150	0.0217	23.99/4.88=4.92	BH	0.0847	-0.0459	32.94/6.52=5.05	BH
BZ35	-Y	0.0729	0.0459	28.53/6.52=4.37	BH	0.0322	0.0225	13.88/4.88=2.85	MH
Conf.✓	+Y	0.0210	0.0459	22.97/4.88=4.71	BH	0.0617	0.0225	13.31/4.01=3.32	BH
BZ36	-Y	0.0577	-0.0225	7.34/4.01=1.83	MH	0.0036	-0.0217	6.43/4.84=1.33	MH
Conf.✓	+Y	0.0094	-0.0225	5.43/4.84=1.12	MH	0.0634	-0.0217	11.57/5.63=2.05	MH
BZ37	-Y	0.1050	-0.0243	15.83/5.63=2.81	MH	0.0845	-0.0312	15.34/6.52=2.35	MH
Conf.✓	+Y	0.0255	-0.0243	8.79/6.52=1.35	MH	0.0051	-0.0312	25.02/7.67=3.26	BH
BZ38	-Y	0.0706	0.0424	9.88/4.84=2.04	MH	0.0270	-0.0736	8.97/3.28=2.74	MH
Conf.✓	+Y	0.0256	0.0424	7.18/3.28=2.19	MH	0.0720	-0.0736	19.6/5.98=3.28	BH
BZ39	-Y	0.0653	0.0961	34.77/5.98=5.82	BH	0.0275	-0.2824	28.95/2.45=11.82	GB
Conf.✓	+Y	0.0585	0.0961	31.84/2.45=13.01	GB	0.0964	-0.2824	29.27/12.31=2.38	MH
BZ42	-X	0.0479	-0.0650	36.63/2.45=14.97	GB	0.0032	0.0650	32.84/4.84=6.79	IH
Conf.✓	+X	0.0032	0.0650	32.92/4.84=6.8	IH	0.0479	-0.0650	36.62/2.45=14.97	GB
BZ43	-X	0.0482	-0.0225	15.62/4.01=3.9	BH	0.0132	0.0225	13.19/4.84=2.73	MH
Conf.✓	+X	0.0132	0.0225	13.22/4.84=2.73	MH	0.0482	-0.0225	15.66/4.01=3.91	BH
B101	-X	0.0510	0.0199	14.47/4.01=3.61	BH	0.0125	-0.0511	7.64/3.31=2.31	MH
Conf.✓	+X	0.0099	-0.0199	11.35/3.31=3.43	BH	0.0536	0.0511	12.52/5.16=2.43	MH
B102	-X	0.0527	0.0087	11.93/5.16=2.31	MH	0.0142	0.0225	14.98/4.84=3.1	BH
Conf.✓	+X	0.0133	-0.0087	9.22/4.84=1.91	MH	0.0518	-0.0225	18.37/4.01=4.58	BH
B104	-X	0.0764	0.0217	45.18/5.63=8.02	IH	0.0156	-0.0217	34.62/4.88=7.1	IH
Conf.✓	+X	0.0156	-0.0217	39.26/4.88=8.05	IH	0.0764	0.0217	42.31/5.63=7.51	IH
B105	-X	0.0929	-0.0173	39.1/5.63=6.94	BH	0.0721	0.0615	36.16/6.27=5.77	BH
Conf.✓	+X	0.0172	0.0173	32.39/6.27=5.17	BH	0.0037	-0.0615	44.22/4.01=11.03	GB
B106	-X	0.0696	0.0217	54.79/5.63=9.73	IH	0.0091	0.0225	48.92/4.84=10.11	GB
Conf.✓	+X	0.0137	-0.0217	47.14/4.84=9.75	IH	0.0649	-0.0225	52.42/4.01=13.08	GB
B107	-X	0.1253	0.1732	4.01/12.8=0.31	MH	0.1031	-0.3465	3.71/6.52=0.57	MH
Conf.✓	+X	0.0280	-0.1732	3.05/6.52=0.47	MH	0.0503	0.3465	8.75/18.31=0.48	MH
B107	-X	0.1552	0.3465	28.47/18.31=1.55	MH	0.1341	-0.3465	27.39/2.3=11.9	GB
Conf.✓	+X	0.0782	-0.3465	28.85/6.52=4.42	BH	0.0993	0.3465	36.13/6.47=5.59	BH
B108	-X	0.0436	0.0199	33.61/4.01=8.38	IH	0.0046	-0.0624	25.26/3.28=7.71	IH
Conf.✓	+X	0.0005	-0.0199	30.53/3.28=9.32	IH	0.0477	0.0624	28.56/5.57=5.13	BH
B109	-X	0.0472	0.0624	22.69/5.57=4.07	BH	0.0071	-0.0624	16.24/3.28=4.96	BH
Conf.✓	+X	0.0067	-0.0624	18.26/3.28=5.57	BH	0.0476	0.0624	21.38/5.57=3.84	BH
B110	-Y	0.0790	0.1490	27.56/8.71=3.16	BH	0.0351	-0.1490	9.73/3.31=2.94	MH
Conf.✓	+Y	0.0365	0.1490	14.81/3.31=4.47	BH	0.0776	-0.1490	20.83/8.71=2.39	MH
B111	-Y	0.0545	0.1715	17.63/8.67=2.03	MH	0.0230	-0.0424	13.47/2.45=5.51	BH
Conf.✓	+Y	0.0064	0.1715	12.61/2.45=5.15	BH	0.0379	-0.0424	14.94/4.01=3.73	BH
B112	-Y	0.0433	0.0199	19.38/4.01=4.84	BH	0.0023	-0.0624	25.6/3.28=7.82	IH
Conf.✓	+Y	0.0016	0.0199	17.58/3.28=5.37	BH	0.0471	-0.0624	31.56/5.57=5.67	BH
B113	-Y	0.0819	0.0459	38.84/6.52=5.96	BH	0.0194	-0.0459	31.36/4.88=6.43	BH
Conf.✓	+Y	0.0158	0.0459	34.55/4.88=7.09	IH	0.0855	-0.0459	43.82/6.52=6.72	BH
B114	-Y	0.0729	0.0459	36.59/6.52=5.61	BH	0.0322	0.0225	19.82/4.88=4.06	BH
Conf.✓	+Y	0.0210	0.0459	31.71/4.88=6.5	BH	0.0617	0.0225	19.55/4.01=4.88	BH
B115	-Y	0.0577	-0.0225	12.05/4.01=3.01	BH	0.0036	-0.0217	10.52/4.84=2.17	MH
Conf.✓	+Y	0.0094	-0.0225	10.21/4.84=2.11	MH	0.0634	-0.0217	15.21/5.63=2.7	MH
B116	-Y	0.1097	-0.0243	17.59/5.63=3.12	BH	0.0893	-0.0624	24.69/6.52=3.79	BH
Conf.✓	+Y	0.0268	-0.0243	10.61/6.52=1.63	MH	0.0064	-0.0624	36.5/8.81=4.14	BH

BEAM	dir	V/(Ac.fct)	ρ-ρ'/ρbi	ri=Mdi/Mri	Dmg.	V/(Ac.fct)	ρ-ρ'/ρbj	rj=Mdj/Mrj	Dmg.
B421	-Y	0.0592	-0.0225	24.38/4.01=6.08	BH	0.0174	-0.0217	21.78/4.84=4.5	BH
Conf.✓	+Y	0.0244	-0.0225	21.63/4.84=4.47	BH	0.0662	-0.0217	22.84/5.63=4.06	BH
B422	-X	0.0465	0.0199	8.93/2.44=3.66	BH	0.0170	-0.0199	7.28/3.31=2.2	MH
Conf.✓	+X	0.0164	-0.0199	4.62/1.8=2.57	MH	0.0471	0.0199	9.53/4.01=2.38	MH
B423	-X	0.0386	0.0424	11.73/3.59=3.27	BH	0.0001	-0.0424	3.08/1.49=2.07	MH
Conf.✓	+X	0.0047	-0.0424	7.8/2.45=3.19	BH	0.0339	0.0424	5.99/2.17=2.76	MH
B425	-X	0.0733	0.0217	23.48/4.2=5.59	BH	0.0222	-0.0217	19.08/4.88=3.91	BH
Conf.✓	+X	0.0201	-0.0217	15.11/4.2=3.6	BH	0.0754	0.0217	24.73/5.63=4.39	BH
B426	-X	0.0847	-0.0615	11.54/3.83=3.01	BH	0.0500	0.0173	7.75/4.67=1.66	MH
Conf.✓	+X	0.0253	0.0615	7.88/3.18=2.48	MH	0.0094	-0.0173	14.38/4.85=2.97	MH
B427	-X	0.0614	0.0199	19.93/4.01=4.97	BH	0.0204	-0.0624	15.39/3.28=4.7	BH
Conf.✓	+X	0.0161	-0.0199	17.26/3.28=5.27	BH	0.0657	0.0624	22.85/5.57=4.1	BH
B428	-X	0.0488	0.3465	11.3/2.41=4.69	BH	0.0274	-0.3465	9.9/3.27=3.03	BH
Conf.✓	+X	0.0647	-0.3465	6.18/0.86=7.2	IH	0.0862	0.3465	14.07/9.81=1.43	MH
B428	-X	0.1133	0.3465	7.47/9.17=0.81	MH	0.0715	-0.1732	1.74/6.52=0.27	MH
Conf.✓	+X	0.0016	-0.3465	0.18/3.5=0.05	MH	0.0435	0.1732	2.15/12.8=0.17	MH
B429	-X	0.0400	0.0624	8.13/2.63=3.09	BH	0.0089	-0.0199	9.1/3.28=2.78	MH
Conf.✓	+X	0.0104	-0.0624	5.14/1.52=3.38	BH	0.0385	0.0199	11.62/3.79=3.06	BH
B430	-X	0.0364	0.0624	10.35/2.43=4.27	BH	0.0180	-0.0624	6.17/1.55=3.99	BH
Conf.✓	+X	0.0180	-0.0624	4.45/1.43=3.12	BH	0.0363	0.0624	9.36/2.59=3.62	BH
B431	-Y	0.0753	0.0312	18.37/7.67=2.4	MH	0.0388	-0.0624	3.28/2.26=1.45	MH
Conf.✓	+Y	0.0388	0.0312	6.97/6.56=1.06	MH	0.0753	-0.0624	13.87/4.19=3.31	BH
B432	-Y	0.0314	0.1732	9.62/3.01=3.19	BH	0.0001	-0.0424	3.91/1.45=2.71	MH
Conf.✓	+Y	0.0042	0.1732	4.33/1.16=3.73	BH	0.0274	-0.0424	6.21/2.17=2.86	MH
B433	-Y	0.0390	0.0199	7.2/2.37=3.04	BH	0.0079	-0.0199	11.15/3.28=3.4	BH
Conf.✓	+Y	0.0078	0.0199	5.21/1.78=2.93	MH	0.0390	-0.0199	15.72/4.01=3.92	BH
B434	-Y	0.0718	-0.0225	18.05/4.01=4.5	BH	0.0383	-0.0217	7.66/3.28=2.34	MH
Conf.✓	+Y	0.0274	-0.0225	15.78/4.88=3.24	BH	0.0826	-0.0217	21.77/3.56=6.12	BH
B435	-Y	0.0526	0.0217	15.2/3.79=4.01	BH	0.0090	0.0225	6.66/2.44=2.73	MH
Conf.✓	+Y	0.0018	0.0217	3.59/3.08=1.17	MH	0.0455	0.0225	3.39/2.07=1.64	MH
B436	-Y	0.0406	-0.0225	4.02/2.0=2.01	MH	0.0141	-0.0459	2.08/1.87=1.11	MH
Conf.✓	+Y	0.0094	-0.0225	5.82/2.49=2.34	MH	0.0454	-0.0459	8.79/2.63=3.34	BH
B437	-Y	0.0903	0.0624	7.05/2.53=2.79	MH	0.0691	-0.0624	10.94/4.23=2.59	MH
Conf.✓	+Y	0.0467	0.0624	-0.38/1.71=-0.22	MH	0.0254	-0.0624	19.3/6.52=2.96	MH
B439	-Y	0.0571	0.0537	16.78/3.85=4.36	BH	0.0120	-0.1091	46.01/2.45=18.8	GB
Conf.✓	+Y	0.0230	0.0537	15.51/2.45=6.34	BH	0.0682	-0.1091	48.22/6.45=7.47	IH
B442	-X	0.0659	-0.0650	73.4/2.45=30.0	GB	0.0440	0.0650	67.53/4.84=13.96	GB
Conf.✓	+X	0.0162	0.0650	67.52/4.84=13.96	GB	0.0058	-0.0650	73.38/2.45=29.99	GB
B443	-X	0.0630	-0.0225	14.83/4.01=3.7	BH	0.0500	0.0225	10.74/4.33=2.48	MH
Conf.✓	+X	0.0002	0.0225	10.7/4.33=2.47	MH	0.0132	-0.0225	14.79/4.01=3.69	BH

BUILDING PERFORMANCE

BEAMS DAMAGE PERCANTAGE

Story NO	(-X) IO	LS	CP	CC	(+X) IO	LS	CP	CC	(-Y) IO	LS	CP	CC	(+Y) IO	LS	CP	CC
5	3.0	15.0	1.0	1.0	4.0	14.0	1.0	1.0	6.9	10.3	0.0	2.3	4.6	12.6	2.3	0.0
4	2.0	14.0	2.0	2.0	2.0	14.0	2.0	2.0	5.7	10.3	1.1	2.3	4.6	14.9	0.0	0.0
3	3.0	12.0	1.0	4.0	3.0	11.0	3.0	3.0	4.6	11.5	1.1	2.3	5.7	12.6	0.0	1.1
2	2.0	9.0	4.0	5.0	2.0	9.0	4.0	5.0	3.4	10.3	2.3	3.4	2.3	11.5	3.4	2.3
1	6.0	7.0	6.0	1.0	6.0	7.0	6.0	1.0	9.2	10.3	0.0	2.3	4.6	14.9	0.0	2.3
Max.		15.0	6.0	5.0					9.2							

X dir. beams number= 100, Y dir. beams number= 87

COLUMNS SHEAR PERCENTAGE

Story NO	(-X) IO	LS	CP	CC	(+X) IO	LS	CP	CC	(-Y) IO	LS	CP	CC	(+Y) IO	LS	CP	CC
5	94.5	5.5	0.0	0.0	94.4	5.6	0.0	0.0	98.1	1.9	0.0	0.0	98.6	1.4	0.0	0.0
4	96.9	2.5	0.6	0.0	96.7	2.7	0.6	0.0	98.4	1.6	0.0	0.0	98.7	1.3	0.0	0.0
3	96.9	2.5	0.6	0.0	97.0	2.4	0.6	0.0	100.	0.0	0.0	0.0	99.9	0.1	0.0	0.0
2	98.0	1.7	0.3	0.0	97.9	1.8	0.3	0.0	100.	0.0	0.0	0.0	100.	0.0	0.0	0.0
1	99.8	0.2	0.0	0.0	99.8	0.2	0.0	0.0	100.	0.0	0.0	0.0	100.	0.0	0.0	0.0
Max.						5.6	0.6		100.							

COLUMNS INCLUDE PLASTIC HINGE SHEAR PERCENTAGE

Story NO	(-X) IO	LS	CP	CC	(+X) IO	LS	CP	CC	(-Y) IO	LS	CP	CC	(+Y) IO	LS	CP	CC
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	4.4	0.8	0.6	0.0	4.1	0.8	0.6	0.0	2.2	0.0	0.0	0.0	1.5	0.0	0.0	0.0
3	1.6	0.0	0.6	0.0	1.6	0.0	0.6	0.0	1.4	0.0	0.0	0.0	1.3	0.0	0.0	0.0
2	0.5	0.0	0.3	0.0	0.6	0.0	0.3	0.0	0.3	0.0	0.0	0.0	1.0	0.0	0.0	0.0
1	0.4	0.2	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Max.	5.8					1.4	0.6									

Beams Collapse Prevention Damage Ratio=%5.0<=%20 Collapse Prevention, can need Resistance.
Roof Story Vc ratio=%0.0<=%40
Columns include Plastic Hinge Vc ratio=%1.4<=%30

REINFORCED PROJECT- EXISTING COLUMN CAPACITY TABLE

No = 0,85 . fcd . b . d +fyd . As
Nmax = 0,5 . fck . Ac
Nd,max = max. design axial load among all load combinations
Nd,x/y = axial load for maximum moment (Md,x/y) in x/y dir.
Md,x/y = maximum moment in x/y direction
Mr,x/y = column capacity moment in x/y dir. (Nd,x/y)
Vd,max = max. column shear force among all combinations
Vr,max = 2 . fck½ . Ac
Ac = Column section area
As,g = Calculated reinf. area
As,m = Existing reinf. area
rm = Exising reinf. ratio

Existing column min. gross cross section : 0.01
Existing column bars corrosion ratio % : 0
Exist members checking option : Mr>Md

ZEMIN. STORY EXIST COLUMN DATA TABLE

COLUMN NO	SIZE	Ac cm²	EXISTING REINF. end	web	Asm cm²	Asg cm²	rm %	No (t)	Nmax (t)	Nd,max (t)	Vd,max (t)
CZ01	25x60	1500	2x3ø14 + 2x2ø14	(	15.39	15.39	0.010	154.6	90.0	67.8	4.6
CZ02	25x60	1500	2x3ø14 + 2x2ø14	(	15.39	15.39	0.010	154.6	90.0	66.6	2.9
CZ03	60x25	1500	2x3ø14 + 2x2ø14	(	15.39	15.39	0.010	154.6	90.0	48.2	1.1
CZ04	25x60	1500	2x3ø14 + 2x2ø14	(	15.39	15.39	0.010	154.6	90.0	6.4	1.3
CZ05	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	5.0	0.5
CZ06	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	89.1	2.5
CZ07	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	89.0	3.5
CZ08	30x60	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	6.0	0.9
CZ09	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	73.4	4.1
CZ10	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	100.9	3.9
CZ11	30x60	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	43.0	4.1
CZ12	30x60	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	80.5	3.0
CZ13	30x70	2100	2x5ø14 + 2x2ø14	(	21.54	21.54	0.010	216.5	126.0	91.7	3.3
CZ14	25x60	1500	2x3ø14 + 2x2ø14	(	15.39	15.39	0.010	154.6	90.0	58.2	2.1
CZ15	25x60	1500	2x3ø14 + 2x2ø14	(	15.39	15.39	0.010	154.6	90.0	68.2	4.7
CZ16	25x60	1500	2x3ø14 + 2x2ø14	(	15.39	15.39	0.010	154.6	90.0	66.2	2.9
CZ17	60x25	1500	2x3ø14 + 2x2ø14	(	15.39	15.39	0.010	154.6	90.0	48.3	1.1
CZ18	25x60	1500	2x3ø14 + 2x2ø14	(	15.39	15.39	0.010	154.6	90.0	6.4	1.3
CZ19	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	5.5	0.3
CZ20	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	88.5	3.9
CZ21	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	86.9	3.7
CZ22	30x60	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	5.7	0.7
CZ23	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	75.0	4.3
CZ24	60x30	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	102.2	4.0
CZ25	30x60	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	44.2	4.2
CZ26	30x60	1800	2x4ø14 + 2x2ø14	(	18.46	18.46	0.010	185.6	108.0	78.7	3.4

ZEMIN. STORY X DIR. EXISTING COLUMN CAPACITY SCHUDULE

		+X DIR.					-X DIR.				
COLUMN NO	Nd,max/ Nmax	Nd,x (t)	Md,x (tm)	Mr,x (tm)	Md,x/ Mr,x	COMMENT	Nd,x (t)	Md,x (tm)	Mr,x (tm)	Md,x/ Mr,x	COMMENT
CZ01	0.753	67.8	1.5	6.0	0.254	✓	67.8	1.5	6.0	0.254	✓
CZ02	0.740	66.1	1.5	6.0	0.248	✓	66.1	1.5	6.0	0.248	✓
CZ03	0.536	29.0	2.9	13.2	0.220	✓	39.8	2.9	14.2	0.204	✓
CZ04	0.071	6.4	0.1	3.7	0.039	✓	6.4	0.1	3.7	0.039	✓
CZ05	0.047	5.0	0.2	11.4	0.015	✓	5.0	0.2	11.4	0.015	✓
CZ06	0.825	35.9	6.4	16.3	0.392	✓	90.2	6.4	18.0	0.355	✓
CZ07	0.824	51.7	7.8	17.9	0.440	✓	75.2	7.8	18.5	0.425	✓
CZ08	0.055	6.0	0.1	5.3	0.027	✓	6.0	0.1	5.3	0.027	✓
CZ09	0.680	12.2	9.6	12.9	0.743	✓	74.2	9.6	18.5	0.521	✓
CZ10	0.934	94.5	10.3	17.7	0.583	✓	49.6	10.3	17.7	0.585	✓
CZ11	0.398	23.8	4.2	6.9	0.604	✓	37.5	4.2	7.7	0.543	✓
CZ12	0.746	70.3	5.1	8.6	0.590	✓	44.6	5.1	8.1	0.630	✓
CZ13	0.728	38.7	5.5	8.6	0.638	✓	37.9	5.5	8.5	0.641	✓
CZ14	0.646	42.2	3.4	5.8	0.589	✓	40.8	3.4	5.7	0.593	✓
CZ15	0.758	68.2	1.5	6.0	0.256	✓	68.2	1.5	6.0	0.256	✓
CZ16	0.736	65.9	1.5	6.0	0.247	✓	65.9	1.5	6.0	0.247	✓
CZ17	0.536	39.8	2.9	14.2	0.207	✓	29.0	2.9	13.2	0.224	✓
CZ18	0.071	6.4	0.1	3.7	0.039	✓	6.4	0.1	3.7	0.039	✓
CZ19	0.051	5.5	0.2	11.5	0.016	✓	5.5	0.2	11.5	0.016	✓
CZ20	0.819	89.6	8.4	18.1	0.466	✓	35.6	8.4	16.3	0.517	✓
CZ21	0.805	74.1	8.2	18.5	0.442	✓	49.8	8.2	17.7	0.462	✓
CZ22	0.052	5.7	0.1	5.3	0.026	✓	5.7	0.1	5.3	0.026	✓
CZ23	0.694	75.8	10.7	18.5	0.579	✓	13.1	10.7	13.1	0.815	✓
CZ24	0.946	49.7	9.9	17.7	0.561	✓	96.2	9.9	17.6	0.565	✓
CZ25	0.409	38.0	4.7	7.7	0.608	✓	25.0	4.7	7.0	0.672	✓
CZ26	0.729	42.7	5.5	8.0	0.691	✓	69.6	5.5	8.6	0.640	✓

STORY CAPACITY CHECK : 112.6 275.4 112.6 275.3
∑+Md,x/∑+Mr,x= 0.409 ∑-Md,x/∑-Mr,x= 0.409
∑Nd,max/∑Nmax=1501.385/2664.0=0.564

ZEMIN. STORY Y DIR. EXISTING COLUMN CAPACITY SCHUDULE

		+Y DIR.					-Y DIR.				
COLUMN NO	Nd,max/ Nmax	Nd,y (t)	Md,y (tm)	Mr,y (tm)	Md,y/ Mr,y	COMMENT	Nd,y (t)	Md,y (tm)	Mr,y (tm)	Md,y/ Mr,y	COMMENT
CZ01	0.753	37.2	6.9	14.0	0.489	✓	59.5	6.9	15.0	0.457	✓
CZ02	0.740	27.0	4.2	12.9	0.322	✓	67.4	4.2	14.9	0.280	✓
CZ03	0.536	48.2	1.1	5.9	0.195	✓	48.2	1.1	5.9	0.195	✓
CZ04	0.071	6.4	0.5	9.9	0.055	✓	6.4	0.5	9.9	0.055	✓
CZ05	0.047	5.0	0.2	5.2	0.031	✓	5.0	0.2	5.2	0.031	✓
CZ06	0.825	35.9	3.9	7.6	0.506	✓	90.2	3.9	8.4	0.461	✓
CZ07	0.824	89.0	2.1	8.4	0.253	✓	89.0	2.1	8.4	0.253	✓
CZ08	0.055	6.0	0.6	11.6	0.055	✓	6.0	0.6	11.6	0.055	✓
CZ09	0.680	12.2	3.3	6.0	0.559	✓	74.2	3.3	8.6	0.386	✓
CZ10	0.934	100.9	2.4	7.8	0.310	✓	100.9	2.4	7.8	0.310	✓
CZ11	0.398	23.8	9.4	14.9	0.633	✓	37.5	9.4	16.5	0.570	✓
CZ12	0.746	70.3	5.6	18.5	0.304	✓	44.6	5.6	17.2	0.326	✓
CZ13	0.728	92.2	4.3	25.8	0.166	✓	-15.7	4.3	9.3	0.458	✓
CZ14	0.646	77.1	2.4	14.5	0.164	✓	6.0	2.4	9.8	0.242	✓
CZ15	0.758	60.5	9.0	15.0	0.597	✓	36.9	9.0	14.0	0.641	✓
CZ16	0.736	67.0	5.1	14.9	0.341	✓	27.0	5.1	12.9	0.392	✓
CZ17	0.536	48.3	1.1	5.9	0.193	✓	48.3	1.1	5.9	0.193	✓
CZ18	0.071	6.4	0.5	9.9	0.054	✓	6.4	0.5	9.9	0.054	✓
CZ19	0.051	5.5	0.2	5.2	0.034	✓	5.5	0.2	5.2	0.034	✓
CZ20	0.819	59.9	2.9	8.5	0.341	✓	35.6	2.8	7.6	0.364	✓
CZ21	0.805	86.9	2.1	8.5	0.246	✓	86.9	2.1	8.5	0.246	✓
CZ22	0.052	5.7	0.6	11.6	0.050	✓	5.7	0.6	11.6	0.050	✓
CZ23	0.694	75.8	3.4	8.6	0.398	✓	13.1	3.4	6.0	0.569	✓
CZ24	0.946	102.2	2.5	7.7	0.317	✓	102.2	2.5	7.7	0.317	✓
CZ25	0.409	38.0	9.0	16.6	0.543	✓	25.0	9.0	15.0	0.599	✓
CZ26	0.729	42.7	4.4	17.0	0.258	✓	37.2	4.6	16.5	0.278	✓

STORY CAPACITY CHECK : 87.6 292.5 ∑+Md,y/∑+Mr,y= 0.300 87.7 269.5 ∑-Md,y/∑-Mr,y= 0.325

∑Nd,max/∑Nmax=1501.385/2664.0=0.564

1. NORMAL. STORY EXIST COLUMN DATA TABLE

COLUMN NO	SIZE	Ac cm²	EXISTING REINF. end web	Asm cm²	Asg cm²	rm %	No (t)	Nmax (t)	Nd,max (t)	Vd,max (t)
C101	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	54.5	4.3
C102	25x60	1500	2x3ø14 + 2x2ø14 (	15.39	15.39	0.010	154.6	90.0	53.0	5.1
C103	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	37.6	4.3
C104	25x60	1500	2x3ø14 + 2x2ø14 (	15.39	15.39	0.010	154.6	90.0	3.2	1.2
C105	50x30	1500	2x4ø14 + 2x1ø14 (	15.39	15.39	0.010	154.6	90.0	2.6	0.9
C106	60x30	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	71.2	7.3
C107	60x30	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	71.0	10.2
C108	30x60	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	3.0	1.3
C109	60x30	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	58.0	8.7
C110	60x30	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	81.4	8.2
C111	30x60	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	34.7	5.4
C112	30x60	1800	2x4ø14 + 2x2ø14 (	18.46	21.54	0.010	185.6	108.0	65.0	6.3
C113	30x70	2100	2x5ø14 + 2x2ø14 (	21.54	36.17	0.010	216.5	126.0	89.6	7.7
C114	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	18.46	0.012	134.2	75.0	62.3	3.7
C115	25x60	1500	2x3ø14 + 2x2ø14 (	15.39	15.39	0.010	154.6	90.0	54.9	5.7
C116	25x60	1500	2x3ø14 + 2x2ø14 (	15.39	15.39	0.010	154.6	90.0	52.7	5.1
C117	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	37.6	4.3
C118	25x60	1500	2x3ø14 + 2x2ø14 (	15.39	15.39	0.010	154.6	90.0	3.2	1.1
C119	60x30	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	3.1	1.3
C120	50x30	1500	2x4ø14 + 2x1ø14 (	15.39	15.39	0.010	154.6	90.0	71.2	5.4
C121	60x25	1500	2x3ø14 + 2x2ø14 (	15.39	15.39	0.010	154.6	90.0	68.2	9.1
C122	25x60	1500	2x3ø14 + 2x2ø14 (	15.39	15.39	0.010	154.6	90.0	2.7	1.2
C123	60x30	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	59.7	7.7
C124	60x30	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	83.0	7.9
C125	30x60	1800	2x4ø14 + 2x2ø14 (	18.46	18.46	0.010	185.6	108.0	35.8	5.3
C126	25x60	1500	2x3ø14 + 2x2ø14 (	15.39	18.46	0.010	154.6	90.0	63.1	5.9

1. NORMAL. STORY X DIR. EXISTING COLUMN CAPACITY SCHUDULE

		+X DIR.					-X DIR.				
COLUMN NO	Nd,max/ Nmax	Nd,x (t)	Md,x (tm)	Mr,x (tm)	Md,x/ Mr,x	COMMENT	Nd,x (t)	Md,x (tm)	Mr,x (tm)	Md,x/ Mr,x	COMMENT
C101	0.726	30.4	1.4	4.8	0.284	✓	46.6	1.4	5.0	0.269	✓
C102	0.588	22.7	3.9	5.0	0.789	✓	52.0	3.9	5.9	0.660	✓
C103	0.501	22.0	6.8	10.5	0.642	✓	30.9	6.8	11.2	0.605	✓

2. NORMAL. STORY Y DIR. EXISTING COLUMN CAPACITY SCHUDULE

	+Y DIR.					-Y DIR.				
COLUMN NO	Nd,max/ Nmax	Nd,y (t)	Md,y (tm)	Mr,y (tm)	Md,y/ Mr,y	COMMENT	Nd,y (t)	Md,y (tm)	Mr,y (tm)	Md,y/ Mr,y	COMMENT
C213	0.394	62.8	5.3	15.0	0.353	✓	-13.1	5.3	5.1	1.029	Mr ✗
C214	0.611	45.8	4.8	11.7	0.412	✓	4.3	4.8	7.8	0.618	✓
C215	0.547	35.6	6.0	11.4	0.528	✓	22.0	6.0	10.5	0.571	✓
C216	0.525	38.6	4.5	11.5	0.393	✓	16.5	4.5	9.9	0.459	✓
C217	0.381	28.6	0.6	4.7	0.137	✓	28.6	0.6	4.7	0.137	✓
C218	0.632	12.4	6.2	9.3	0.675	✓	21.1	6.2	10.4	0.599	✓
C219	0.344	10.9	3.1	3.9	0.795	✓	25.2	3.1	4.6	0.681	✓
C220	0.597	36.7	6.7	6.5	1.029	Mr ✗	38.6	6.7	6.6	1.017	Mr ✗
C221	0.662	34.4	2.9	4.9	0.594	✓	35.2	2.9	4.9	0.592	✓
C222	0.434	-3.1	2.6	6.3	0.414	✓	48.6	2.6	11.8	0.222	✓
C223	0.464	24.8	4.5	5.1	0.878	✓	28.7	4.5	5.3	0.841	✓
C224	0.701	47.8	4.1	6.9	0.588	✓	40.5	4.1	6.7	0.606	✓
C225	0.248	24.5	5.9	14.9	0.394	✓	13.0	5.9	13.1	0.449	✓
C226	0.627	43.5	5.5	11.6	0.473	✓	22.3	5.5	10.6	0.521	✓

STORY CAPACITY CHECK : 108.8 209.8 109.1 205.9

∑+Md,y/∑+Mr,y= 0.518 ∑-Md,y/∑-Mr,y= 0.530

∑Nd,max/∑Nmax=1083.38/2043.0=0.530

3. NORMAL. STORY EXIST COLUMN DATA TABLE

COLUMN NO	SIZE	Ac cm²	EXISTING REINF. end web	Asm cm²	Asg cm²	rm %	No (t)	Nmax (t)	Nd,max (t)	Vd,max (t)
C301	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	27.5	3.7
C302	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	26.1	3.0
C303	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	19.1	3.6
C304	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	14.9	5.1
C305	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	13.6	2.9
C306	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	35.4	4.1
C307	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	33.6	5.3
C308	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	14.6	2.8
C309	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	25.7	5.1
C310	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	41.0	4.3
C311	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	17.2	3.0
C312	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	18.46	0.012	134.2	75.0	32.0	3.9
C313	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	24.62	0.012	134.2	75.0	20.6	3.9
C314	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	18.46	0.012	134.2	75.0	29.7	3.3
C315	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	27.4	4.0
C316	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	26.1	3.0
C317	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	19.1	3.5
C318	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	13.7	5.0
C319	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	13.9	2.9
C320	50x30	1500	2x4ø14 + 2x1ø14 (	15.39	15.39	0.010	154.6	90.0	36.0	4.3
C321	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	32.2	5.3
C322	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	14.6	2.8
C323	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	25.6	4.7
C324	50x25	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	41.8	4.2
C325	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	15.39	0.012	134.2	75.0	17.3	2.6
C326	25x50	1250	2x4ø14 + 2x1ø14 (	15.39	18.46	0.012	134.2	75.0	31.5	3.8

3. NORMAL. STORY X DIR. EXISTING COLUMN CAPACITY SCHUDULE

	+X DIR.					-X DIR.				
COLUMN NO	Nd,max/ Nmax	Nd,x (t)	Md,x (tm)	Mr,x (tm)	Md,x/ Mr,x	COMMENT	Nd,x (t)	Md,x (tm)	Mr,x (tm)	Md,x/ Mr,x	COMMENT
C301	0.366	15.8	1.3	4.2	0.312	✓	22.8	1.3	4.5	0.291	✓
C302	0.348	12.0	3.5	4.0	0.884	✓	24.6	3.5	4.5	0.776	✓
C303	0.254	11.0	5.3	9.0	0.590	✓	15.6	5.3	9.7	0.547	✓
C304	0.199	4.5	0.3	3.4	0.100	✓	14.9	0.3	4.1	0.083	✓
C305	0.182	8.4	1.9	8.6	0.224	✓	10.6	1.9	9.0	0.214	✓
C306	0.472	16.5	4.3	9.9	0.433	✓	33.1	4.3	11.3	0.378	✓
C307	0.448	17.7	8.1	10.0	0.809	✓	29.4	8.1	11.1	0.730	✓
C308	0.195	13.3	4.2	4.1	1.032	Mr ✗	6.3	4.2	3.6	1.168	Mr ✗
C309	0.343	9.1	4.2	8.7	0.486	✓	25.7	4.2	10.9	0.388	✓
C310	0.547	34.4	6.5	11.3	0.574	✓	23.0	6.5	10.7	0.611	✓
C311	0.229	9.6	2.7	3.8	0.701	✓	14.4	2.7	4.1	0.655	✓
C312	0.427	25.5	5.0	4.6	1.090	Mr ✗	19.3	5.0	4.3	1.153	Mr ✗
C313	0.274	14.5	5.9	4.1	1.437	Mr ✗	14.3	5.9	4.1	1.441	Mr ✗
C314	0.396	16.9	5.0	4.2	1.195	Mr ✗	16.9	5.0	4.2	1.194	Mr ✗
C315	0.365	22.8	2.7	4.5	0.610	✓	15.6	2.7	4.2	0.655	✓

4. NORMAL. STORY EXIST COLUMN DATA TABLE

COLUMN NO	SIZE	Ac cm²	EXISTING REINF. end	web	Asm cm²	Asg cm²	rm %	No (t)	Nmax (t)	Nd,max (t)	Vd,max (t)
C422	25x50	1250	2x4ø14 + 2x1ø14	(	15.39	18.46	0.012	134.2	75.0	6.0	2.7
C423	50x25	1250	2x4ø14 + 2x1ø14	(	15.39	15.39	0.012	134.2	75.0	12.2	5.3
C424	50x25	1250	2x4ø14 + 2x1ø14	(	15.39	15.39	0.012	134.2	75.0	21.6	3.9
C425	25x50	1250	2x4ø14 + 2x1ø14	(	15.39	15.39	0.012	134.2	75.0	8.4	3.5
C426	25x50	1250	2x4ø14 + 2x1ø14	(	15.39	18.46	0.012	134.2	75.0	15.6	4.6

4. NORMAL. STORY X DIR. EXISTING COLUMN CAPACITY SCHUDULE

		+X DIR.					-X DIR.				
COLUMN NO	Nd,max/ Nmax	Nd,x (t)	Md,x (tm)	Mr,x (tm)	Md,x/ Mr,x	COMMENT	Nd,x (t)	Md,x (tm)	Mr,x (tm)	Md,x/ Mr,x	COMMENT
C401	0.180	8.2	1.5	3.7	0.399	✓	10.8	1.5	3.9	0.380	✓
C402	0.176	6.7	3.9	3.6	1.072	Mr ✗	11.8	3.9	4.0	0.975	✓
C403	0.125	5.6	6.5	8.1	0.805	✓	7.6	6.5	8.4	0.770	✓
C404	0.097	7.3	0.2	3.7	0.045	✓	2.8	0.2	3.3	0.050	✓
C405	0.128	-0.8	1.0	6.7	0.148	✓	9.6	1.0	8.8	0.114	✓
C406	0.240	9.5	4.4	8.8	0.503	✓	15.7	4.4	9.7	0.453	✓
C407	0.224	8.9	8.6	8.7	0.991	✓	14.7	8.6	9.6	0.896	✓
C408	0.084	6.3	4.2	3.6	1.173	Mr ✗	2.0	4.2	3.2	1.302	Mr ✗
C409	0.161	12.1	4.5	9.2	0.490	✓	12.1	4.5	9.2	0.490	✓
C410	0.284	16.9	6.6	9.9	0.670	✓	12.9	6.6	9.3	0.711	✓
C411	0.111	5.0	1.9	3.5	0.548	✓	6.7	1.9	3.6	0.527	✓
C412	0.212	12.2	4.2	4.0	1.042	Mr ✗	10.0	4.2	3.9	1.078	Mr ✗
C413	0.111	5.9	5.1	3.6	1.438	Mr ✗	5.8	5.1	3.5	1.442	Mr ✗
C414	0.179	8.5	4.4	3.8	1.171	Mr ✗	8.5	4.4	3.8	1.170	Mr ✗
C415	0.180	10.7	3.4	3.9	0.865	✓	8.2	3.4	3.7	0.907	✓
C416	0.175	11.7	2.3	4.0	0.590	✓	6.7	2.3	3.6	0.649	✓
C417	0.125	7.6	6.7	8.4	0.793	✓	5.6	6.7	8.1	0.830	✓
C418	0.096	7.2	0.2	3.7	0.044	✓	7.2	0.2	3.7	0.044	✓
C419	0.128	9.6	1.0	8.8	0.112	✓	-0.7	1.0	6.8	0.146	✓
C420	0.204	16.1	8.3	10.0	0.833	✓	9.6	8.3	8.9	0.938	✓
C421	0.216	14.0	8.1	9.5	0.853	✓	8.7	8.1	8.6	0.939	✓
C422	0.080	4.8	2.8	3.5	0.819	✓	3.7	2.8	3.4	0.841	✓
C423	0.163	11.3	8.9	9.1	0.978	✓	5.8	8.9	8.1	1.095	Mr ✗
C424	0.288	13.1	5.4	9.4	0.581	✓	17.2	5.4	10.0	0.547	✓
C425	0.112	6.7	4.2	3.6	1.157	Mr ✗	5.0	4.2	3.5	1.202	Mr ✗
C426	0.208	9.9	4.5	3.9	1.171	Mr ✗	11.9	4.5	4.0	1.134	Mr ✗
STORY CAPACITY CHECK :			112.8	158.4				112.8	156.5		
			∑+Md,x/∑+Mr,x=		0.712			∑-Md,x/∑-Mr,x=		0.721	
			∑Nd,max/∑Nmax=324.737/1965.0=0.165								

4. NORMAL. STORY Y DIR. EXISTING COLUMN CAPACITY SCHUDULE

		+Y DIR.					-Y DIR.				
COLUMN NO	Nd,max/ Nmax	Nd,y (t)	Md,y (tm)	Mr,y (tm)	Md,y/ Mr,y	COMMENT	Nd,y (t)	Md,y (tm)	Mr,y (tm)	Md,y/ Mr,y	COMMENT
C401	0.180	13.5	7.5	9.4	0.794	✓	13.5	7.5	9.4	0.794	✓
C402	0.176	7.6	4.5	8.4	0.534	✓	10.9	4.5	9.0	0.500	✓
C403	0.125	6.1	0.2	3.6	0.066	✓	7.1	0.2	3.6	0.064	✓
C404	0.097	4.2	8.0	7.8	1.027	Mr ✗	5.9	8.0	8.1	0.986	✓
C405	0.128	2.9	4.5	3.3	1.365	Mr ✗	5.9	4.5	3.5	1.272	Mr ✗
C406	0.240	13.0	5.2	4.0	1.288	Mr ✗	12.2	5.2	4.0	1.300	Mr ✗
C407	0.224	8.8	2.5	3.8	0.662	✓	14.8	2.5	4.1	0.606	✓
C408	0.084	3.7	1.2	7.7	0.153	✓	3.6	1.2	7.7	0.150	✓
C409	0.161	7.7	3.6	3.7	0.968	✓	9.2	3.6	3.8	0.937	✓
C410	0.284	16.0	2.5	4.2	0.591	✓	13.8	2.5	4.1	0.605	✓
C411	0.111	7.1	6.1	8.3	0.726	✓	4.6	6.1	7.9	0.770	✓
C412	0.212	13.8	8.2	9.5	0.861	✓	8.4	8.2	8.6	0.951	✓
C413	0.111	17.1	5.2	9.9	0.524	✓	-5.3	5.2	5.8	0.896	✓
C414	0.179	13.4	6.4	9.4	0.678	✓	3.6	6.4	7.7	0.832	✓
C415	0.180	10.9	7.1	9.0	0.792	✓	8.0	7.1	8.5	0.840	✓
C416	0.175	7.6	4.3	8.4	0.515	✓	6.6	4.6	8.3	0.552	✓
C417	0.125	6.1	0.2	3.6	0.065	✓	7.1	0.2	3.6	0.063	✓
C418	0.096	4.2	7.7	7.8	0.993	✓	5.9	7.7	8.1	0.953	✓
C419	0.128	3.0	4.4	3.3	1.343	Mr ✗	5.9	4.4	3.6	1.253	Mr ✗
C420	0.204	13.1	7.3	5.2	1.404	Mr ✗	12.6	7.3	5.2	1.416	Mr ✗
C421	0.216	10.6	1.9	3.9	0.497	✓	12.1	1.9	4.0	0.486	✓
C422	0.080	3.8	1.2	7.7	0.151	✓	4.7	1.2	7.9	0.147	✓
C423	0.163	8.1	3.5	3.7	0.950	✓	9.0	3.5	3.8	0.931	✓
C424	0.288	16.3	2.4	4.2	0.566	✓	14.0	2.4	4.1	0.581	✓

4. NORMAL. STORY Y DIR. EXISTING COLUMN CAPACITY SCHUDULE

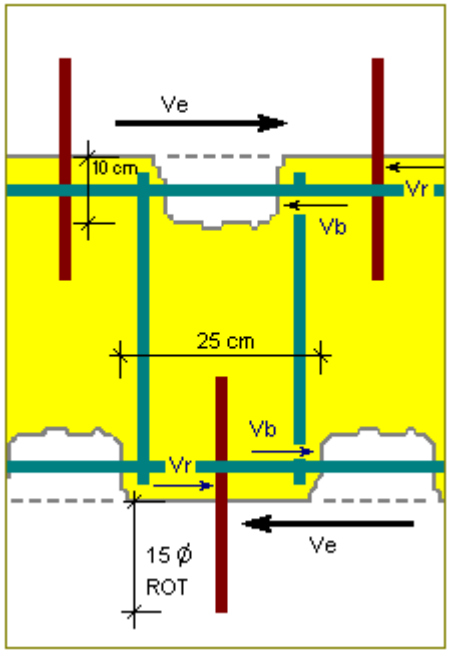
		+Y DIR.					-Y DIR.				
COLUMN NO	Nd,max/ Nmax	Nd,y (t)	Md,y (tm)	Mr,y (tm)	Md,y/ Mr,y	COMMENT	Nd,y (t)	Md,y (tm)	Mr,y (tm)	Md,y/ Mr,y	COMMENT
C425	0.112	7.1	5.9	8.4	0.712	✓	4.6	5.9	7.9	0.755	✓
C426	0.208	13.5	7.8	9.4	0.831	✓	8.3	7.8	8.6	0.915	✓

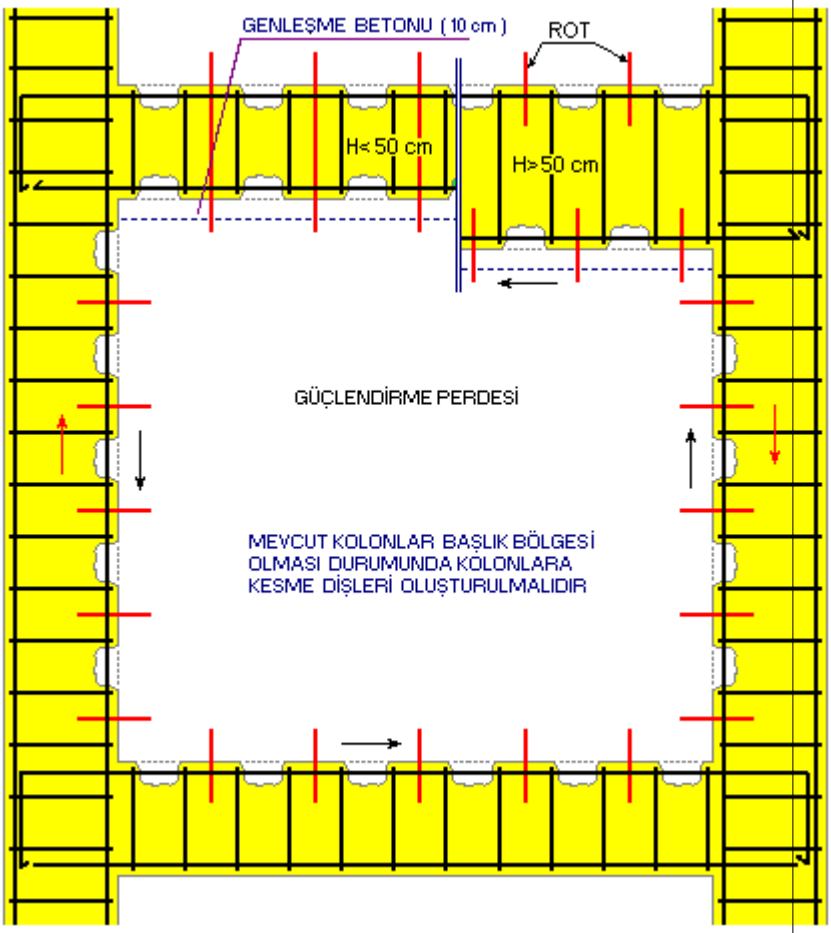
STORY CAPACITY CHECK : 119.5 167.7 119.6 160.8

∑+Md,y/∑+Mr,y= 0.712 ∑-Md,y/∑-Mr,y= 0.744

∑Nd,max/∑Nmax=324.737/1965.0=0.165

ROT ve KESME dişlerinin hesabı





SHEAR CHECK FOR RETROFITTED SHEARWALL
C12
fcd =96. fctd=9.69(kg/cm²)
fyd =4000.(kg/cm²)

Rod shear force capacity :
Vr=1.49 (t) ø20 l=597 mm

PZ03 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=18.74 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1500. =9.45 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+5x1.49 (rod)+6.16 (reinf.) =29.37>18.74 (t)
shear check for beam connection: Vpx=94.9 (t)
Friction force = 1.4 x (Ng - Ne) = 30.8 (t)
V=4x3.15 (rib)+29x1.49 (rod)+9.45 (colum) +30.8 (friction) =96.13>94.9 (t)

PZ24 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=18.77 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1500. =9.45 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+5x1.49 (rod)+6.16 (reinf.) =29.37>18.77 (t)
shear check for beam connection: Vpx=95.35 (t)
Friction force = 1.4 x (Ng - Ne) = 29.82 (t)
V=4x3.15 (rib)+30x1.49 (rod)+9.45 (colum) +29.82 (friction) =96.64>95.35 (t)

P103 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=112.43 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1500. =9.45 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+61x1.49 (rod)+6.16 (reinf.) =112.95>112.43 (t)
shear check for beam connection: Vpx=41.93 (t)
Friction force = 1.4 x (Ng - Ne) = -2.15 (t)
V=4x3.15 (rib)+15x1.49 (rod)+9.45 (colum) +-2.15 (friction) =42.29>41.93 (t)

P124 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=111.55 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1500. =9.45 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+61x1.49 (rod)+6.16 (reinf.) =112.95>111.55 (t)
shear check for beam connection: Vpx=40.2 (t)
Friction force = 1.4 x (Ng - Ne) = -1.93 (t)
V=4x3.15 (rib)+14x1.49 (rod)+9.45 (colum) +-1.93 (friction) =41.02>40.2 (t)

P203 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=37.21 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1250. =7.88 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+11x1.49 (rod)+6.16 (reinf.) =38.33>37.21 (t)
shear check for beam connection: Vpx=68.51 (t)
Friction force = 1.4 x (Ng - Ne) = 42.16 (t)
V=4x3.15 (rib)+4x1.49 (rod)+7.88 (colum) +42.16 (friction) =68.6>68.51 (t)

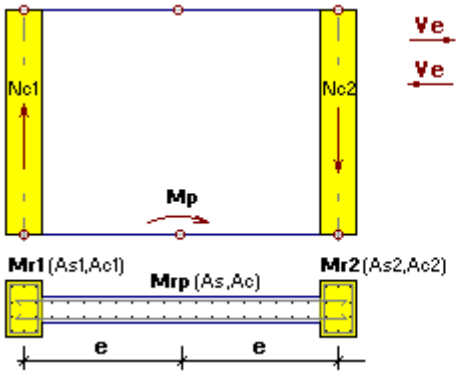
P224 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=37.66 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1250. =7.88 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+11x1.49 (rod)+6.16 (reinf.) =38.33>37.66 (t)
shear check for beam connection: Vpx=67.1 (t)
Friction force = 1.4 x (Ng - Ne) = 43.14 (t)
V=4x3.15 (rib)+4x1.49 (rod)+7.88 (colum) +43.14 (friction) =69.59>67.1 (t)

P303 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=22.48 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1250. =7.88 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+5x1.49 (rod)+6.16 (reinf.) =29.37>22.48 (t)
shear check for beam connection: Vpx=45.81 (t)
Friction force = 1.4 x (Ng - Ne) = 31.38 (t)
V=4x3.15 (rib)+4x1.49 (rod)+7.88 (colum) +31.38 (friction) =57.83>45.81 (t)

P324 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=22.53 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1250. =7.88 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+5x1.49 (rod)+6.16 (reinf.) =29.37>22.53 (t)
shear check for beam connection: Vpx=46. (t)
Friction force = 1.4 x (Ng - Ne) = 31.87 (t)
V=4x3.15 (rib)+4x1.49 (rod)+7.88 (colum) +31.87 (friction) =58.32>46. (t)

P403 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=11.2 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1250. =7.88 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+5x1.49 (rod)+6.16 (reinf.) =29.37>11.2 (t)
shear check for beam connection: Vpx=15.33 (t)
Friction force = 1.4 x (Ng - Ne) = 16.33 (t)
V=4x3.15 (rib)+4x1.49 (rod)+7.88 (colum) +16.33 (friction) =42.77>15.33 (t)

P424 SHEAR CHECK IN PANEL REFROFITTING
shear force capacity for single rib:
Vc1=96.x20.x 5 =9.6 (t) Vc2=0.65x9.69x20.x25=3.15 (t) >> Vb=3.15 (t)
shear check for column conn. : Vpy=11.18 (t)
shear force capacity of edge column : Vk= 0.65 x 9.69x1250. =7.88 (t)
Column reinf. =1ø14 As=1.54 cm2
V=5x3.15 (rib)+5x1.49 (rod)+6.16 (reinf.) =29.37>11.18 (t)
shear check for beam connection: Vpx=15.38 (t)
Friction force = 1.4 x (Ng - Ne) = 16.51 (t)
V=4x3.15 (rib)+4x1.49 (rod)+7.88 (colum) +16.51 (friction) =42.96>15.38 (t)



Ve

Mr1=As1 fyd e, Mr2=0.85 Ac2 fcd + As2 fyd e

Ve

Mr1=0.85 Ac1 fcd + As1 fyd e, Mr2=As2 fyd e

Md = (Mc1+Nc1 * e) + (Mc2+Nc2 * e) + Mp

Mr = Mrp + Mr1 + Mr2 > Md

$\varrho_{sh} = \frac{2.A_{sws}}{A_{ch}} \frac{L_w}{s}$ Vr=0.22 Ach fcd >Vd

Vr=0.65 fctd Ac + ϱ_{sh} Ach fyd > Vd

PANEL MOMENT and SHEAR CAPACITY CHECK (tm)

Panel	Com.	Mp	Mc1	Mc2	Mrp	Mr1	Mr2	∑Md	∑Mr	Vd	Vr	✓,✗
PZ03	10	-325.17	-322.31	0.00	155.63	1016.95	56.96	647.48	1229.55	95.00	154.87	✓
PZ19	12	536.35	207.06	113.76	397.24	377.67	382.57	857.16	1157.48	138.66	146.60	✓
PZ24	10	325.22	319.85	0.00	156.57	870.81	200.64	645.07	1228.02	95.40	154.87	✓
PZ40	11	538.15	206.22	113.43	397.42	377.67	382.57	857.80	1157.66	139.88	146.60	✓
P103	10	-117.22	-348.11	0.00	102.11	1127.89	47.47	465.32	1277.47	44.31	125.43	✓
P119	12	136.29	224.84	201.15	233.47	468.08	405.61	562.28	1107.16	57.45	146.60	✓
P124	10	113.81	341.69	0.00	86.74	962.70	200.64	455.50	1250.08	41.96	122.60	✓
P140	11	146.32	223.05	199.96	233.38	454.22	405.61	569.33	1093.21	59.29	146.60	✓
P203	10	163.04	40.26	26.05	135.97	43.44	197.66	229.34	377.07	71.38	96.87	✓
P219	12	-217.41	-56.00	-53.30	324.91	285.25	93.28	326.71	703.44	93.17	148.58	✓
P224	10	-159.14	-27.03	-41.32	136.58	197.66	43.44	227.49	377.69	70.38	96.87	✓
P240	11	-210.60	-54.91	-52.37	324.91	285.25	93.28	317.88	703.44	90.42	148.58	✓
P303	10	73.03	7.03	-1.62	127.13	43.44	197.66	78.43	368.24	48.22	96.87	✓
P319	11	-97.91	-11.61	-12.90	306.90	285.25	93.28	122.42	685.43	63.57	148.58	✓
P324	10	-72.89	1.41	-7.18	127.41	197.66	43.44	78.65	368.52	48.54	96.87	✓
P340	12	-97.96	-11.47	-12.77	306.96	285.25	93.28	122.21	685.49	62.98	148.58	✓
P403	10	48.31	-3.01	-7.68	114.57	43.44	197.66	37.62	355.67	18.39	96.87	✓
P419	11	-54.34	-0.98	-0.50	274.58	285.25	93.28	55.82	653.12	26.30	148.58	✓
P424	10	-48.64	7.64	2.99	114.73	197.66	43.44	38.01	355.84	18.74	96.87	✓
P440	12	-54.21	-0.93	-0.44	274.61	285.25	93.28	55.59	653.15	26.50	148.58	✓