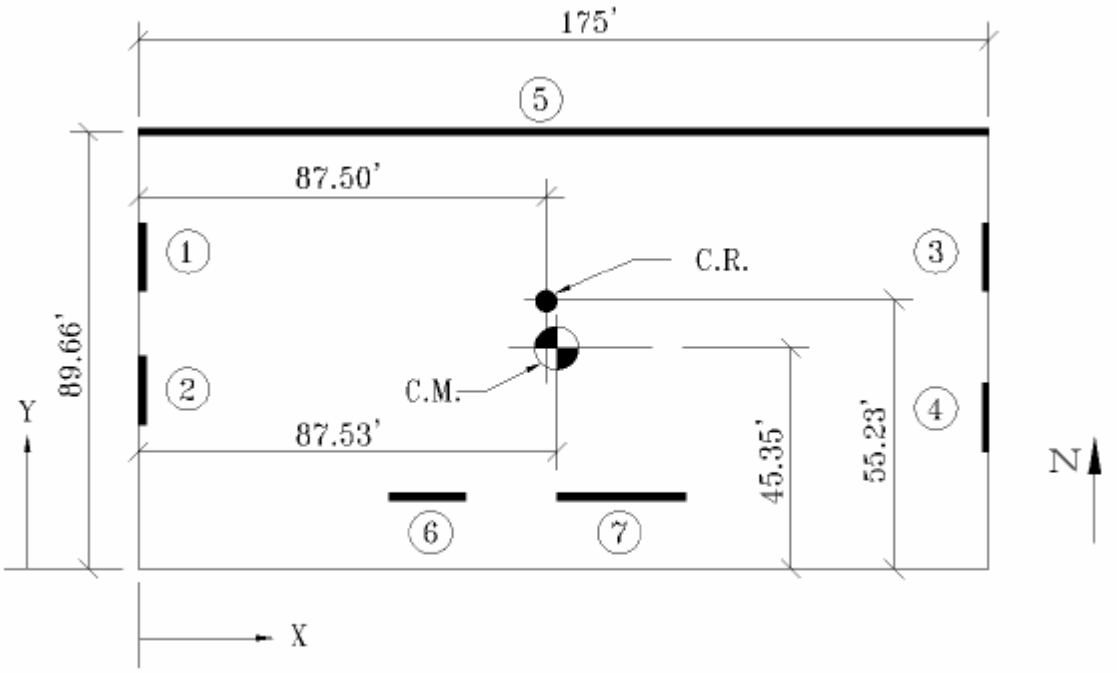

- Base shears:

F_{Py} =0.293(3965.6)=1161.9 kips (in y direction)

F_{Px} =0.293(4023.5)=1178.9 kips (in x direction)

Table 8-2. Relative Rigidity of the Walls

Wall No.	Height, ft	Length, ft	*H/L*	*E*, lb/in^2	*t*, in.	Δ	*R* = 1/Δ
1	10	17.33	0.5770	3,000,000	11.625	0.0716	13.96
2	10	17.33	0.5770	3,000,000	11.625	0.0716	13.96
3	10	17.33	0.5770	3,000,000	11.625	0.0716	13.96
4	10	17.33	0.5770	3,000,000	11.625	0.0716	13.96
5	10	175.00	0.0571	1,500,000	7.625	0.0150	66.67
6	10	17.33	0.5770	3,000,000	11.625	0.0716	13.96
7	10	35.33	0.2830	3,000,000	11.625	0.0269	37.17

Table 8-3. Center-of-Rigidity Calculations for Example 8-1

Wall No.	Dir.	*x*	*y*	R_x	R_y	xR_y	yR_x
1	*y*	0.50	----	----	13.96	6.98	----
2	*y*	0.50	----	----	13.96	6.98	----
3	*y*	174.50	----	----	13.96	2,436.02	----
4	*y*	174.50	----	----	13.96	2,436.02	----
5	*x*	----	89.33	66.67	----	----	5,995.63
6	*x*	----	10.00	13.96	----	----	139.60
7	*x*	----	10.00	37.17	----	----	371.70
Σ				117.80	55.84	4,886.00	6,506.93

$$x_r = \frac{\sum xR_y}{\sum R_y} = \frac{4886.0}{55.84} = 87.50 \text{ ft}$$

$$y_r = \frac{\sum yR_x}{\sum R_x} = \frac{6506.93}{117.8} = 55.23 \text{ ft}$$