
Supplementary information

Verification of seismic enforced-displacement pushover procedure on torsionally flexible, asymmetric, multi-storey r/c buildings

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Figure S1 shows the numbering of the structural members in the nonlinear model of the six-storey r/c building. The dimensions of the cross-sections and the reinforcement details are presented in Tables A1-A3.

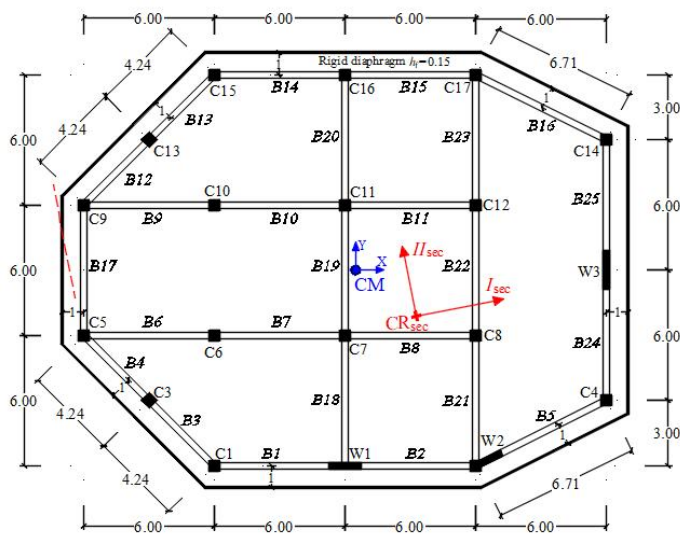


Figure S1. Numbering of the structural members in the nonlinear model of the six-storey r/c building.

Table S1. Geometry of cross sections.

Structural element	Storey					
	1	2	3	4	5	6
All square columns	50/50					
All T-beams	T 30/60/150/15					
Wall W1	150/30					
Wall W2	150/30/50/50					
Wall W3	30/180					

Table S2. Reinforcement details of T beams' end-sections (closed perimeter stirrup Ø8 mm placed every 80 mm).

Beam	Storey											
	1		2		3		4		5		6	
	start	end	start	end	start	end	start	end	start	end	start	end
<i>Longitudinal bars Ø16 mm or Ø14 mm (*) at beam end-sections, placed on top-bottom fibers</i>												
B 1	6-5	8-6	7-5	9-7	7-5	9-7	5-4	7-5	5-4 *	5-4	4-4 *	4-4 *
2	8-6	9-7	9-7	10-8	9-7	9-7	7-5	8-6	5-4	6-5	4-4 *	4-4
3	4-4	4-4	5-5	5-5	5-5	5-5	4-4	4-4	4-4 *	4-4 *	4-4 *	4-4 *
4	4-4	4-4	5-5	5-5	5-5	5-5	4-4	4-4	4-4 *	4-4 *	4-4 *	4-4 *
5	6-5	6-5	8-6	7-6	8-6	7-6	6-5	5-5	4-4	4-4	4-4 *	4-4 *
6	5-4	5-4	5-4	6-5	5-4	6-5	4-4	4-4	4-4 *	4-4	4-4 *	4-4 *
7	5-4	5-4	6-5	6-5	6-5	6-5	4-4	4-4	4-4	4-4 *	4-4 *	4-4 *
8	5-4	5-4	6-5	6-5	6-5	6-5	4-4	4-4	4-4 *	4-4 *	4-4 *	4-4 *
9	5-4	6-4	6-4	6-4	5-4	6-4	4-4	5-4	4-4 *	4-4	4-4 *	4-4 *
10	6-4	6-4	6-4	6-4	6-4	5-4	5-4	4-4	4-4	4-4 *	4-4 *	4-4 *

11	6-4	6-5	6-4	7-5	5-4	6-5	4-4	5-4	4-4 *	4-4 *	4-4 *	4-4 *
12	5-5	5-4	5-5	6-4	4-4	5-4	4-4	4-4	4-4 *	4-4 *	4-4 *	4-4 *
13	5-4	6-5	6-4	6-5	5-4	5-4	4-4	4-4	4-4 *	4-4 *	4-4 *	4-4 *
14	7-5	6-5	7-5	7-5	7-5	6-5	5-4	5-4	4-4	4-4 *	4-4 *	4-4 *
15	6-5	6-5	7-5	7-5	6-5	6-5	5-4	5-4	4-4 *	4-4 *	4-4 *	4-4 *
16	7-5	8-6	8-6	8-6	7-5	7-5	6-5	6-5	4-4	4-4	4-4 *	4-4 *
17	4-4	4-4	5-4	5-4	5-4	5-4	5-4	5-4	4-4	4-4	4-4 *	4-4 *
18	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4 *	4-4 *
19	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4 *	4-4 *
20	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4 *	4-4 *
21	4-4	4-4	5-4	5-4	5-4	4-4	4-4	4-4	4-4	4-4	4-4 *	4-4 *
22	4-4	4-4	5-4	5-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4 *	4-4 *
23	4-4	4-4	5-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4 *	4-4 *
24	7-6	8-6	8-6	9-7	8-6	9-7	7-6	8-6	5-4	5-4	4-4 *	4-4
25	8-6	7-5	9-7	8-6	9-7	8-6	8-6	7-6	5-4	5-4	4-4	4-4 *

**Top flange reinforcement bars: 12Ø8 mm (Ø8/120 mm) are considered in the calculation of the bending strength of T beams.*

Table S3. Reinforcement details of columns and walls.

Column (C) or Wall (W)	Storey					
	1	2	3	4	5	6
	Number of longitudinal bars and diameter (mm). Number of (closed) stirrup legs along x and y dir. - diameter (mm)/distance (mm) between legs					
All columns	12Ø20 confinement x & y: 4 legs - Ø8/80				4Ø20 + 8Ø14 x & y: 4 legs - Ø8/80	
W1	2 b. el. 0.4 × 0.3 m: (3Ø25+7Ø20) × 2 web: 10Ø10 confinement x, y: 4, 6 legs - Ø8/80		2 boundary el. 0.4 × 0.3 m: (10Ø14) × 2 web: 10Ø10 confinement x, y: 4, 6 legs - Ø8/80			
W2	2 boundary el. 0.5 × 0.5 m + 0.4 × 0.3 m: (16Ø20) + (3Ø25 + 7Ø20) web: 10Ø10 confinement x, y: (6, 6 legs - Ø8/80) + (6, 6 legs - Ø8/80)				2 b. el. 0.5 × 0.5 m + 0.4 × 0.3 m: (12Ø20) + (10Ø14) web: 10Ø10 confinement x, y: (4, 4 legs - Ø8/80) + (4, 6 legs - Ø8/80)	
W3	2 b. el. 0.3 × 0.45 m: (12Ø20) × 2 web: 14Ø12 confinement x, y: 6, 4 legs - Ø8/80		2 b. el. 0.3 × 0.40 m: (10Ø20) × 2 web: 12Ø12 confinement x, y: 6, 4 legs - Ø8/80		2 bound. el. 0.3 × 0.40 m: (10Ø14) × 2 web: 12Ø12 confinement x, y: 6, 4 legs - Ø8/80	