

02. Structural Design Basis Note

Proposed Residential Apartment Building – Structural Stability Submission

Chinnavedampatti, Coimbatore

Item	Details
Project	Residential apartment building
Configuration	Ground + 5 upper floors
Structural System	RCC framed structure with slabs, beams, columns and isolated footings
Location	Chinnavedampatti, Coimbatore
Submission Purpose	Preliminary structural stability basis for RERA / statutory submission

1. Geotechnical Basis

- Foundation recommendation adopted: RCC isolated footings.
- Recommended founding level: 2.40 m below natural ground level.
- Safe Bearing Capacity adopted for preliminary design basis: 33.76 t/sq.m (approximately 331 kN/sq.m).
- Founding stratum shall be verified at site during excavation before footing concreting.

2. Design Materials

- Concrete grade proposed: M25 for RCC members unless revised in final design.
- Reinforcement steel proposed: Fe500.
- PCC below footing: M10 / M15 as per final structural detail.

3. Design Codes Proposed

- IS 456 – Plain and Reinforced Concrete.
- IS 875 – Design loads (relevant parts).
- IS 1893 – Earthquake resistant design criteria.
- IS 13920 – Ductile detailing, wherever applicable.
- IS 1904 – Design and construction of foundations in soils.

4. Structural Configuration

- The building is envisaged as a reinforced cement concrete framed structure.
- Floor system consists of RCC slabs supported on RCC beams and columns.
- Lift and staircase core zones shall be integrated into the overall framing system.
- Plinth / tie beams shall be provided to tie columns and improve structural integrity.

5. Preliminary Member Size Ranges

- Slabs: 125 mm to 150 mm thick.
- Secondary beams: 230 x 450 mm.
- Main beams: 300 x 500 mm to 300 x 600 mm.
- Columns: 300 x 450 mm to 450 x 450 mm / 300 x 600 mm.

- Footings: typical range 1.8 m x 1.8 m to 2.5 m x 2.5 m depending on load.

6. Design Loads (Preliminary Basis)

- Self-weight of RCC members shall be considered.
- Wall loads shall be taken based on actual architectural wall thicknesses.
- Floor finish loads, live loads, terrace loads, staircase loads and service loads shall be accounted for in detailed design.
- Seismic effects shall be considered in detailed analysis as per applicable code provisions.

7. Foundation Concept

- RCC isolated footings are proposed at a founding depth of approximately 2.40 m below natural ground level.
- Footings shall be sized based on actual service / factored column loads in final analysis.
- All footing sizes shown in preliminary submissions are indicative and subject to revision after detailed design.

8. Important Note

- This document is intended as a preliminary structural design basis note for RERA / statutory submission only.
- Final structural analysis, reinforcement detailing, working drawings and structural stability certification for execution shall be issued separately by the licensed structural engineer.

03. Preliminary Foundation Layout

Proposed Residential Apartment Building – Structural Stability Submission

	A	B	C	D	E	F	G
1	F2	F3	F3	F3	F3	F3	F2
2	F2	F3	F4	F4	F4	F3	F2
3	F2	F3	F4	F4	F4	F3	F2
4	F2	F3	F4	F4	F4	F3	F2
5	F2	F3	F4	F4	F4	F3	F2
6	F2	F3	F4	F4	F4	F3	F2
7	F2	F3	F3	F3	F3	F3	F2
8	F1	F2	F2	F2	F2	F2	F1

Preliminary Footing Schedule

Footing Type	Preliminary Size (mm)	Typical Use	Pedestal
F1	1800 x 1800 x 450	Light corner / edge columns	450 x 450
F2	2100 x 2100 x 500	Edge / medium columns	450 x 450

F3	2300 x 2300 x 550	Typical interior columns	500 x 500
F4	2500 x 2500 x 600	Heavy interior / core columns	500 x 500

General Notes

- Foundation system proposed: RCC isolated footings.
- Founding level adopted: 2.40 m below natural ground level.
- Safe Bearing Capacity adopted: 33.76 t/sq.m (approx. 331 kN/sq.m).
- All sizes shown are preliminary and subject to confirmation by final structural analysis.
- PCC bedding shall be provided below all footings.
- Founding strata shall be checked at site prior to concreting.

04. Preliminary Structural Framing Plan

Typical Floor – Conceptual Beam / Column / Slab Marking

	A	B	C	D	E	F	G
1	C1	C2	C2	C2	C2	C2	C1
2	C1	C2	C3	C3	C3	C2	C1
3	C1	C2	C3	C3	C3	C2	C1
4	C1	C2	C3	CORE	CORE	C2	C1
5	C1	C2	C3	C3	C3	C2	C1
6	C1	C2	C3	C3	C3	C2	C1
7	C1	C2	C2	C2	C2	C2	C1

Preliminary Member Legend

Member Mark	Preliminary Size / Description
C1	Column 300 x 450 mm
C2	Column 300 x 600 mm
C3	Column 450 x 450 mm
B1	Beam 230 x 450 mm

B2	Beam 300 x 500 mm
B3	Beam 300 x 600 mm
S1	Slab 125 mm thick
S2	Slab 150 mm thick
CORE	Lift / Stair core zone to be integrated in final design

General Notes

- The framing shown is a conceptual typical floor structural arrangement for statutory submission reference.
- Beam, column and slab sizes are preliminary and shall be finalized after detailed structural analysis.
- Openings, shafts, staircase, lift core and wall positions shall be coordinated with final architectural drawings.
- Detailed reinforcement drawings are not part of this preliminary submission.