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Annexure – XIV
[See rule 51 (3)]
Form 1
Structural Design Basis Report
(1) This report to accompany the application for Building Developments

Part 1	General Data		
S.No.	**Description**	**Information**	**Notes**
1.	Site Address	G+2Floors, TS NO:1041/27,53, BlockNo:30, Ward-A Vellithirumutham,Melur Road, Srirangam, Zone I, Tiruchirappali District.	
2	Name of Owner	M/S SBRR INFRA PRIVATE LIMITED	
3	Name of Registered Developer along with the Registration Number	M/S SBRR INFRA PRIVATE LIMITED	
4	Name of Registered Architect/Engineer along with the Registration Number	S. RAMALINGAM	RE.GR.I/DTCP/TRICHY/NOV-2024/70 on21.11.2024
5	Name of Registered Structural engineer along with the Registration Number	P.PRAGADESWARAN	SE/GrI/DTCP/ Trichy/Oct-2020/274
6	Use of the building	RESIDENTIAL	RESIDENTIAL
7	Number of stories above ground level (including storeys to be added later, if any)	GROUND+2 FLOORS	
8	Number of basements below ground level	0	
9	Type of structure Load bearing walls R.C.C. frame R.C.C. frame and Shear Walls Steel frame	R.C.C. frame	
10	Soil data Type of soil Design safe bearing capacity	Soft Rock 390 Kn/m^2	IS:1893 C1.6.3.5.2 IS: 1904 IS: 1892 IS: 2131 IS: 2720

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11	Dead loads (unit weight adopted) • Earth • Water • Brick masonry • Plain cement concrete • Reinforced cement concrete • Floor finish • Other fill materials	 18 kN/m^3 10 kN/m^3 20 kN/m^3 24 kN/m^3 25 kN/m^3 23 kN/m^2 10 kN/m^2	IS: 875 Part 1
12	Imposed (live) loads Floor loads Roof loads	 2 kN/m^2 1.50 kN/m^2	IS: 875 Part 2
13	Cyclone/Wind • Speed • Design pressure intensity	47 m/sec 1.47 N/m^2	IS: 875 Part 3
14	Seismic zone	II	IS: 1893 (2002)
15	Importance factor	1	IS:1893(2002) Table 6
16	Seismic zone factor (Z)	0.10	IS:1893 Table 2
17	Response reduction factor	3	IS:1893 Table 7
18	Fundamental natural period – approx.	Ta-0.66 5sec	IS:1893 C1.7.6
19	Design horizontal acceleration spectrum value (A_h)	0.034	IS: 1893 C1.6.4.2
20	♠ Expansion/Separation Joints	Separate	
21	Building is regular/irregular	REGULAR	IS 1893

♥ Enclose detailed drawings drawn to scale for each floor

♦ In case terrace garden is provided, indicate additional fill load and live load along with the detailed drawings drawn to scale

Part 2	**Load bearing masonry buildings**		
Sl.No.	**Description**	**Information**	**Notes**
1	Building category		IS: 4326 C1.7 Read with IS:1893 Zone / Bldg. — II III IV V Ordinary — B C D E Important — C D E E
2	Basement Provided		
3	Number of floors including Ground Floor (all floors including stepped floors in hill slopes)		
4	Type of wall masonry		

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5	Type and mix of Mortar				IS: 4326 C1.8.1.2
6	Re: size and position of openings (See note No.[i]) • Minimum distance (b5) • Ratio $(b_1+b_2+b_3)/1_1$ or $(b_6+b_7)/1_2$ • Minimum pier width between consequent opening (b_4) • Vertical distance (h_3) • Ratio of wall height to thickness 4 Ratio of wall length between cross wall to thickness				IS: 4326 Table 4, Fig.7
7	Horizontal seismic band	P	IP	NA	(see note No.2)
	• at plinth level	☐	☐	☐	IS:4326 C1 8.4.6
	• at window sill level	☐	☐	☐	IS: 4326 C1 8.3
	• at lintel level	☐	☐	☐	IS: 4326 C1 8.4.2
	• at ceiling level	☐	☐	☐	IS: 4326 C1 8.4.3
	• at eave level of sloping roof	☐	☐	☐	IS: 4326 C1 8.4.3
	• at top of gable walls • at top of ridge walls	☐ ☐	☐ ☐	☐ ☐	IS: 4326 C1 8.4.4
8	Vertical reinforcing bar at corners and T junction of walls at jambs of doors and window openings	☐ ☐	☐ ☐	☐ ☐	IS: 4326 C1 8.4.8. IS: 4326 C1 8.4.9
9	Integration of prefab roofing/flooring elements through reinforced concrete screed.	☐	☐	☐	IS:4326 C1 9.1.4
10	Horizontal bracings in pitched truss in horizontal plane at the level of ties in the slopes of pitched roofs	☐ ☐	☐ ☐	☐ ☐	

Notes: (i) Information in Item 6 should be given on separate A4 sheets for all walls with large number of openings

(ii) IP indicated "Information Provided" IP indicates "Information to be provided" NA indicates "Not Applicable"
Tick mark one box

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Part 3	Reinforced concrete framed buildings		
Sl. No.	Description	Information	Notes
1	Type of building • Regularframes • Regular frames with ShearWalls • Irregularframes • Irregular frames with ShearWalls • Softstorey	Regular frames	IS: 1893 C1 7.1
2	Number of basements	0	
3	Number of floors including ground floor		
4	Horizontal floor system • Beams andslabs • Waffles • Ribbedfloor • Flat slab withdrops • Flat plate withoutdrops	Beams and Slabs	
5	Soil data • Type of soil • Recommended type of foundation -Independent footings -Raft -Piles • Recommended bearing capacity of soil • Recommended type, length, diameter and load capacity ofpiles • Depth of watertable • Chemical analysis of groundwater • Chemical analysis ofsoil	Soft Rock Independent& Combined footings - 39 t/M^2 3 m below Ground Level - -	IS: 1498
6	Foundations Depth below ground level Type Independent Interconnected Raft Piles	3.25 m Independent	
7	System of interconnecting foundations Plinth beams Foundation beams	Foundations Plinth beams	IS: 1893 C1 7.12.1
8	Grades if concrete used in different parts of building	M25	
9	Method of analysis used	Finite Element Method	

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10	Computer software used	STAAD.Pro V8i	
11	Torsion included	Designed	IS: 1893 C1 7.9
12	Base shear a. Based on approximate fundamental period b. Based on dynamicanalysis c. Ratio ofa/b	1961kn	IS: 1893 Cl. 7.5.3
13	Distribution of seismic Forces along the height of the building.	Separately enclosed	IS:1893 Cl.7.7 (Provide sketch)
14	The Column of soft ground storey specially designed.	Designed	IS: 1893 Cl.7.10
15	Clear minimum cover provided in • Footing • Column • Beams • Slabs • Walls	 50mm 32mm 32mm 25mm 32mm	IS: 456 Cl. 26.4
16	Ductile detailing of RC frame • Type of reinforcementused • Minimum dimension ofbeams • Minimum dimension ofcolumns • Minimum percentage of reinforcement of beams at any crosssection • Maximum percentage of reinforcement at any section ofbeam • Spacing of transverse reinforcement in 2-d length of beams near theends • Ratio of capacity of beams in shear to capacity of beams inflexure Maximum percentage of reinforcement incolumn	 TMT Bars 0.30X0.38 0.30X0.45 0.24% 2.50% d/4 0.50% 4%	IS: 456 Cl. 5.6 IS: 13920 Cl.6.1 IS: 13920 Cl.7.1.2 IS: 456 Cl.26.5.1(a) IS: 13920 Cl.6.2.1 IS:456Cl.26.5.1.1(b) IS: 13920Cl.6.2.2 IS: 13920Cl.6.3.5 IS: 456 Cl.26.5.3.1 IS: 13920 Cl. 7.4

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	• Confining stirrups near ends of columns and in beam-columnjoints Diameter Spacing • Ratio of shear capacity of columns to maximum seismic shear in the storey.	10mm Dia 75mm C/C Less than 1	IS:456 CI.26.5.3.1 IS:13920 CI.7.4
17	Does the features require clearance by SDRP Example: High rise building Prefab building Building in hazard prone areas	Does not arise	

Foundation

i. In case raft foundation has been adopted, indicate K value used for analysis of the raft.
ii. Incase pile foundations have been used, give full particulars of the piles, type, dia, length, capacity
iii. In case of high water table, indicate system of countering water pressure, and indicate the existing water table, and that assumed to design foundations.

Idealization for Earthquake analysis

i. In case of composite system of shear walls and rigid frames, give distribution of base shear in the two systems on the basis of analysis, and that used for design of each system
ii. Indicate the idealization of frames and shear walls adopted in the analysis with the help of sketches.
iii. Submit framing plans of each floor
iv. In case of basements, indicate the system used to contain earth pressures.

Part 4	**Buildings in structural steel**		
1	Adopted method of design	○ Simple ○ Semi-rigid ○ Rigid	IS:800 CI 3.4.4 IS:800 CI.3.4.5 IS:800 CI.3.5.6
2	Design based on	○ Elastic analysis ○ Plastic analysis	IS: 800 Section-9 SP;6 (6)
3	Floor construction	○ Composite ○ Non composite ○ Boarded	
4	Roof construction	○ Composite ○ Non composite ○ Metal ○ Any other	
5	Horizontal force resisting system adopted	Frames Braced frames Frames & shear walls	Note: Seismic force As per IS:1893 Would depend on system
6	Slenderness ratios maintained	Members defined in Table 3.1, IS:800	IS 800; CI.3.7

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7	Member deflection limited to	Beams, Rafters Crane Girders, Purlins Top of columns	IS:800 Cl.3.13
8	Structural members	○ Encased in concrete Not encased	IS: 800 Section-10
9	Proposed material	○ General weld-able ○ High strength ○ Cold formed ○ Tubular	IS: 2062 IS: 8500 IS: 801, 811 IS: 806
10.	Minimum met al thickness Specified for corrosion protection	○ Hot rolled sections ○ Cold formed sections ○ Tubes	IS: 800, Cl.3.8 Cl.3.8.1 to Cl.3.8.4 Cl.3.8.5
11	Structural connections	○ Rivets ○ CT Bolts ○ S H F G Bolts ○ Black Bolts ○ Welding field Shop (Specify welding type proposed) Composite	IS: 800, Section-8 IS: 1929, 2155, 1149 IS 6639, 1367 IS 3757, 4000 IS: 1363, 1367 IS: 816, 814,1395, 7280, 3613, 6419, 6560, 813, 9595
12	Minimum Fire rating proposed, wit h method	○ Rating.....hours ○ Method proposed. -In tumescent painting -Spraying -Quilting -Fire retardant boarding	IS: 1641, 1642, 1643

Part-5

Any special weakness in the building making it vulnerable for stability related failure and the precaution to be taken during execution/completion and finishing to be indicated.

Part-6

Recommendations of structural Engineer with respect to special requirements needed with respect to structural safety and stability to be taken note of by competent authority feature like incorporation of swimming pool, heavy load on roof ,prefabricated structure or any other hazardous features should be included.

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Date:21.03.2025

STABILITY CERTIFICATE

(To be furnished while filing application for registration of building)

1. The detailed engineering and structure design of the proposed comprising Ground+2 Total 15 Residential dwelling units to be set up At Residential Building In T.S.No:1041/27,53, Ward-A Melur Vellithirumutham ,Block No:30, Melur Road, Sriranagm Zone-I, Thiruchirappali City Corporation. has been done by us based on the report of Geotechnical Investigation (soil test) done by Time Institute for Material Testing, No-25 Raja Colony Sanjeevi Nagar, Chennai bye pass Road Trichy-620002.
(Report No: Time/35/Soil Test/December 2023) Dated:14.12.2025 and considering the by functional requirement of the building.

2. It is certified that among other factors, the proposed building has been designed to resist earthquake. I/We have checked various parameters and found that the proposed building would be safe.

3. I/We further certify that:

(i) The minimum grade of concrete is M25

(ii) The design and analysis has been done using the code of practice for plain and reinforced concrete as per IS 456, design loads as per IS Codes No 875 and design of earthquake resistant structure as per IS Code No 1893

4. The building will be safe and sound when used for the purpose for which it is designed.

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