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C.KANNAN, M.E. (Structure)
STRUCTURAL ENGINEER

Door .21, plot No. 257- W, Flat No. 2B
"Utopia Apartments" 2nd Floor,
4th Main Road, Indira Nagar,
Chennai- 600 020
Mobile: 9841249815
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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

Part1	**General Data**		
S.No.	**Description**	**Information**	**Notes**
1.	Site Address	Old S.No. 365/4A2A1A1 New S. No. 365/100, Padur Village, Thiruporur Taluk, Chengalpattu District	
2	Name of Owner		
3	Name of Registered Developer along with the Registration Number		
4	Name of Registered Architect/Engineer along with the Registration Number		
5	Name of Registered Structural engineer along with the Registration Number	Mr.C.Kannan,	Reg No: DTCP - CGLRGN/SE/GR-I/ 2019/05/002
6	Use of the building	Residential Building	
7	Number of stories above ground level (including storeys to be added later, if any)	STILT +5	
8	Number of basements below ground level	Nil	
9	Type of structure Load bearingwalls 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	Very dense brownish silty fine sand 70 t/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 • Brickmasonry • Plain cementconcrete • Reinforced cementconcrete • Floorfinish • Other fillmaterials	IS:875 Part 1	IS: 875 Part 1
12	Imposed (live) loads • Floor Loads • Roof Loads	4kN/m^2	IS:875 Part 2
13	Cyclone/Wind • Speed • Design pressureintensity	50 m/s	IS: 875 Part 3
14	Seismic zone	III	IS: 1893 (2016)
15	Importance factor	1	IS:1893(2016) Table 6
16	Seismic zone factor (Z)	3	IS:1893 Table 2
17	Response reduction factor	3	IS:1893 Table 7
18	Fundamental natural period – approx.		IS:1893 C1.7.6
19	Design horizontal acceleration spectrum value (A_h)		IS: 1893 C1.6.4.2
20	♠Expansion/Separation Joints		
21	Building is regular/irregular		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 toscale

Part 2	**Load bearing masonrybuildings**		
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 floorsincluding stepped floors in hill slopes)		
4	Type of wall masonry		
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 consequentopening (b_4) • Vertical distance(h_3) • Ratio of wall height to thickness4 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 plinthlevel	⌋	⌋	⌋	IS:4326 C1 8.4.6
	• at window sillevel	⌋	⌋	⌋	IS: 4326 C1 8.3
	• at lintellevel	⌋	⌋	⌋	IS: 4326 C1 8.4.2
	• at ceilinglevel	⌋	⌋	⌋	IS: 4326 C1 8.4.3
	• at eave level of sloping roof	⌋	⌋	⌋	IS: 4326 C18.4.3 IS: 4326 C18.4.4
	• at top of gablewalls	⌋	⌋	⌋	
	• at top of ridgewalls	⌋	⌋	⌋	
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		IS: 1893 C1 7.1
2	Number of basements		

3	Number of floors including ground floor		
4	Horizontal floor system • Beams andslabs • Waffles • Ribbedfloor • Flat slab withdrops • Flat plate withoutdrops		
5	Soil data • Type ofsoil • Recommended type offoundation -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	Very dense brownish silty fine sand Raft slab 70 t/m^2	IS: 1498
6	Foundations Depth below ground level Type Independent Interconnected Raft Piles	3.0m	
7	System of interconnecting foundations Plinth beams Foundation beams	Plinth Beams	IS: 1893 C1 7.12.1
8	Grades if concrete used in different parts of building	M25	
9	Method of analysis used		
10	Computer software used		
11	Torsion included		IS: 1893 C1 7.9
12	Base shear a. Based on approximate fundamental period b. Based on dynamicanalysis c. Ratio ofa/b		IS: 1893 Cl. 7.5.3
13	Distribution ofseismic forces along the height of the building.		IS:1893 Cl.7.7 (Provide sketch)
14	The Column of soft ground storey specially designed.		IS: 1893 Cl.7.10
15	Clear minimum cover provided in • Footing • Column • Beams • Slabs • Walls	 50 40 25 20 25	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 • Confining stirrups near ends of columns and in beam-columnjoints Diameter Spacing • Ratio of shear capacity of columns to Maximum seismic shear in thestorey		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: 456 Cl.26.5.1.1(b) IS: 13920 Cl.6.2.2 IS: 13920 Cl.6.3.5 IS: 456 Cl.26.5.3.1 IS: 13920 Cl. 7.4
17	Does the features require clearance by SDRP Example: High rise building Prefab building Building in hazard prone areas		

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 designfoundations.

Idealization for Earthquake analysis

i. In case of composite system of shear walls and rigid frames, give distribution of baseshear 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 ofsketches.

iii. Submit framing plans of eachfloor

iv. In case of basements, indicate the system used to contain earthpressures.

Part 4	**Buildings in structural steel**		
1	Adopted method of design	○ Simple ○ Semi-rigid ✓ Rigid	IS:800 Cl3.4.4 IS:800Cl.3.4.5 IS:800Cl.3.5.6
2	Design based on	○ Elasticanalysis ✓ Plasticanalysis	IS: 800 Section-9 SP;6 (6)
3	Floor construction	○ Composite ○ Noncomposite ○ Boarded	

4	Roof construction	o Composite o Noncomposite ✓ Metal o Anyother	
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:800i).DL+IL=180. ii).WL+E.Q.L=250.	IS 800; Cl.3.7
7	Member deflection limited to	Beams, Rafters Crane Girders, Purlins Top of columns	IS:800 Cl.3.13
8	Structural members	o Encased inconcrete ✓ Not encased	IS: 800 Section-10
9	Proposed material	o Generalweld-able ✓ Highstrength o Coldformed o Tubular	IS: 2062 IS: 8500 IS: 801, 811 IS: 806
10.	Minimum metal	o Hot rolledsections	IS: 800, Cl.3.8
	thickness Specified for corrosion protection	o Cold formedsections o Tubes	Cl.3.8.1 to Cl.3.8.4 Cl.3.8.5
11	Structural connections	o Rivets ✓ CT Bolts o S H F GBolts o BlackBolts ✓ Welding field o 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, with method	o Rating...4.....hours o Methodproposed. -In tumescent painting ✓ -Spraying -Quilting -Fire retardant boarding	IS: 1641, 1642, 1643

Part-5

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

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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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Guideline Value, Apartment Composite Value, Stamp Duty & Registration Fees Calculator, Building Value Calculator, Capital Gains Calculator, Area Unit Converter, Length Unit Converter

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Encumbrance Certificate (EC) Search, Find Your SRO, Temple Property Check, WAQF Property Check, View Patta/Chitta, View FMB, Patta Analyzer, EC Analyzer

Zoning & Land Use Analysis

Land Use Zone Finder, CRZ Zone Check, Aquifer Zone Check, CBA Check, EWS Check, Road Width Check, Proposed Road Widening Check, FSI Calculator

Property Documentation & Workflow Tools

Forms & Templates, Document Generator, Document Translation, Dictionary

Vastu & Property Management Tools

Home Vastu Shastra, Plot Vastu Shastra, Property Management

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