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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	Survey no. 1358/1, Thaiyur village road, Thaiyur Village, Kelambakkam post.	
2	Name of Owner	M/s. Sai Manoj Namburu	
3	Name of Registered Developer along with the Registration Number	M/s. Alliance Villas Pvt Ltd CGLDIST/RD/2021/01/002	
4	Name of Registered Architect/Engineer along with the Registration Number	Mr. Shankaranarayanan RA/Gr.1/19/04/005	
5	Name of Registered Structural engineer along with the Registration Number	S. Nagesh **SE/GR-I/19/05/004**	
6	Use of the building	Residential	
7	Number of stories above ground level (including storeys to be added later, if any)	Ground floor + First floor	
8	Number of basements below ground level	Nil	
9	Type of structure Load bearing walls R.C.C. frame R.C.C. frame and Shear Walls Steel frame	RCC FRAMED STRUCTURE	
10	Soil data Type of soil Design safe bearing capacity	Clayey silty sand 13 t/sqm	Is; 1893 C1.6.3.5.2 Is; 1904 Is; 1892 Is; 2131 Is; 2720
11	Dead loads (unit weight adopted) • Earth • Water • Brick masonry • Plain cement concrete • Reinforced cement concrete • Floor finish • Other fill materials	1.8 t/cum 1.0 t/cum 1.0 t/cum 2.4 t/cum 2.4 t/cum 2 t/cum	Is; 875 part 1
12	Imposed (live) loads Floor Loads Roof Loads	200 kg/sqm 100 kg/sqm	Is; 875 part 2
13	Cyclone/Wind • Speed • Design pressure intensity	50 m/sec 150 kg/sqm	Is; 875 part 3

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14	Seismic zone	III	Is;1893 (2002)
15	Importance factor	1.0	Is;1893 (2002) Table 6
16	Seismic zone factor (Z)	0.16	Is;1893 Table 2
17	Response reduction factor	5.0	Is;1893 Table 7
18	Fundamental natural period – approx.	0.3 sec	Is;1893 C1.7.6
19	Design horizontal acceleration spectrum value (A_h)	0.02	Is;1893 C1.6.4.2
20	♥ Expansion/Separation Joints	No	
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- NOT APPLICABLE**		
Sl.No.	**Description**	**Information**	**Notes**
1	Building category	nil	IS: 4326 C1.7 Read with IS:1893 Zone II III IV V Bldg. 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		
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 $(b_1+b_2+b_3)/l_1$ or $(b_6+b_7)/l_2$ • 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 • at plinth level • at window sill level • at lintel level • at ceiling level	P IP NA } } } } } } } } } } } }	(see note No.2) IS:4326 C1 8.4.6 IS: 4326 C1 8.3 IS: 4326 C1 8.4.2 IS: 4326 C1 8.4.3 IS: 4326 C1 8.4.3

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	• at eave level of sloping roof • at top of gable walls • at top of ridge walls	} } }	IS: 4326 C1 8.4.3 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

Part 3	**Reinforced concrete framed buildings**		
Sl. No.	**Descri ption**	**Information**	**Notes**
1	Type of building • Regular frames • Regular frames with Shear Walls • Irregular frames • Irregular frames with Shear Walls • Soft storey	Regular Frame	IS: 1893 C1 7.1
2	Number of basements	NIL	
3	Number of floors including ground floor	G +1 floors	
4	Horizontal floor system • Beams and slabs • Waffles • Ribbed floor • Flat slab with drops • Flat plate without drops	BEAMS & SLABS	
5	Soil data • Type of soil • Recommended type of foundation -Independent footings -Raft -Piles • Recommended bearing capacity of soil	STIFF CLAY Isolated footings 13 t/sqm	IS: 1498

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	• Recommended type, length, diameter and load capacity of piles • Depth of water table • Chemical analysis of ground water • Chemical analysis of soil	NO WATER TABLE AT TIME OF INVESTIGATION WITHIN LIMITS	
6	Foundations Depth below ground level Type Independent Interconnected Raft Piles	Isolated Footing	
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	Minimum grade M25	
9	Method of analysis used	Static analysis	
10	Computer software used	Etabs & safe	
11	Torsion included		IS: 1893 C1 7.9
12	Base shear a. Based on approximate fundamental period b. Based on dynamic analysis c. Ratio of a/b	97 t	IS: 1893 Cl. 7.5.3
13	Distribution of seismic height of forces Along 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 mm 40 mm 30 mm 25 mm 30 mm	IS: 456 Cl. 26.4
16	Ductile detailing of RC frame • Type of reinforcement used • Minimum dimension of beams • Minimum dimension of columns • Minimum percentage of reinforcement of beams at any cross section • Maximum percentage of reinforcement at any section of beam • Spacing of transverse reinforcement in 2-d length of beams near the ends • Ratio of capacity of beams in shear to capacity of beams in flexure • Maximum percentage of reinforcement in column	Fe 500 200 mm 300 mm 0.25% 1.0% 120 mm 2.5%	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

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	• Confining stirrups near ends of columns and in beam-column joints Diameter Spacing • Ratio of shear capacity of columns to maximum seismic shear in the storey.	8 120 mm	
17	Does the features require clearance by SDRP Example: High rise building Prefab building Building in hazard prone areas	Not applicable	

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 NOT APPLICABLE**		
1	Adopted method of design	o Simple o Semi-rigid o Rigid	IS:800 Cl 3.4.4 IS:800 Cl.3.4.5 IS:800 Cl.3.5.6
2	Design based on	o Elastic analysis o Plastic analysis	IS: 800 Section-9 SP;6 (6)
3	Floor construction	o Composite o Non composite o Boarded	
4	Roof construction	o Composite o Non composite o Metal o 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; Cl.3.7
7	Member deflection	Beams, Rafters	IS:800 Cl.3.13

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	limited to	Crane Girders, Purlins Top of columns L/300	
8	Structural members	o Encased in concrete Not encased	IS: 800 Section-10
9	Proposed material	o General weld-able o High strength o Cold formed o Tubular	IS: 2062 IS: 8500 IS: 801, 811 IS: 806
10.	Minimum metal thickness Specified for corrosion protection	o Hot rolled sections o Cold formed sections o Tubes	IS: 800, Cl.3.8 Cl.3.8.1 to Cl.3.8.4 Cl.3.8.5
11	Structural connections	o Rivets o CT Bolts o S H F G Bolts o Black Bolts o 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 with proposed, method	o o 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 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

Ownership, Compliance & Legal Verification

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

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Vastu & Property Management Tools

Home Vastu Shastra, Plot Vastu Shastra, Property Management

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