Structural Stability Certificate to be in the letter pad

STABILITY CERTIFICATE

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

The detailed engineering and structure design of the proposed building comprising of **4** floors at **Sy.No.251/7.Ts.no: 3/18. Block :28, ward 22, madakkulam village, byepass road, Madurai-625016** has been done by me/us based on the report of geotechnical investigation (soil test) done by **A.R.K. construction, GEO-TECH engineering division, near BSNL office, anaiyur, Madurai-625017**. Report No. **54/ARK/GT/25-26**. Dated 10/02/2026 and considering the 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 **M-25**

(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.

Madurai District Town and Country Planning

Stamp and Signature

Encl.: Structural Design Calculation

Annexure –XIV

[Seerules51(3)]

Form1

Structural Design Basis Report

(1)This report to accompany the application for Building Developments

Part I	**General Data**		
S. No.	**Description**	**Information**	**Notes**
1	Site Address	T.S.NO:3/18, MADAKKULAM VILLAGE THIRUPPARANKUNDRAM TALUK,MADURAI.	
2	Name of Owner	B.KUMARESAN	
3	Name of Registered Developer a long with the Registration Number	NIL	
4	Name of Registered Architect / Engineer along with the Registration Number		
5	Name of Registered Structural engineer along with the Registration Number	S.SATHISH REG.NO:RE-GR-11/06/2026/DTCP	
6	Use of the building	RESIDENTIAL	
7	Number of stories above ground I	STILT+4+TERRACE	
8	Number of basements below ground level		
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	KARKAR MIX SAND SBC-310KN/m @3M depth	IS:1893C1.6.3.5.2 IS: 1904 IS:1892 IS:2131 IS:2720
11	Dead loads (unitweightadopted) • Earth • Water • Brick masonry • Plaincement concrete • Reinforcedcement concrete • Floorfinish • Otherfillmaterials	- 26KN/m3 - 10KN/m3 - 19KN/m3 - 24KN/m3 - 25KN/m3 - 1KN/m2	IS:875PartI
12	Imposed (live)loads Floor loads	2 KN/m2 FOR FLOOR	IS:875Part2

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	Roofloads	1.5 KN/m2	
13	Cyclone/Wind • Speed • Designpressureintensity •	NIL	IS:875Part3
14	Seismiczone	NIL	IS:1893(2002)
15	Importancefactor	NIL	IS:1893(2002) Table6
16	Seismiczonefactor(Z)	NIL	IS:1893Table2
17	Responsereductionfactor	NIL	IS:1893Table7
18	Fundamentalnaturalperiod-approx.	NIL	IS:1893C1.7.6
19	Designhorizontalaccelerationspectrum value(A_h)	NIL	IS:1893C1.6.4.2
20	Expansion/SeparationJoints	NIL	
21	Buildingisregular/irregular	NIL	IS1893

Enclosedetaileddrawingsdrawntoscaleforeachfloor

♦ Incase terrace garden is provided, indicate additional fill load and live load along with the detaileddrawings drawn to scale

Part2	**Loadbearingmasonrybuildings**		
Sl.No.	**Description**	**Information**	**Notes**
1	Buildingcategory	Commercial, Residential building	IS:4326C1.7 ReadwithIS:1893 Zone / Bldg. | II | III | IV | V Ordinary | B | C | D | E Important | C | D | E | E
2	BasementProvided		
3	Number of floors including Ground Floor (all floors including stepped floors in hill slopes)		
4	Typeofwallmasonry		
5	TypeandmixofMortar		IS:4326C1.8.1.2
6	Re:sizeandpositionofopenings (See note No.[i]) • Minimumdistance(b_5) • Ratio (b_1+b_2+b_3)/$l_1$or (b_6+b_7)/l_2 • Minimumpierwidthbetween consequent opening (b_4) • Verticaldistance(h_3) • Ratio of wall height to thickness 4		IS:4326Table4,Fig.7

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	Ratio of wall length between cross wall to thickness		
7	Horizontal seismic band At plinth level At window sill level At lintel level Atceilinglevel At eave level of sloping roof At top of gable walls Attopofridgewalls	P IP NA	(see note No.2) IS:4326C18.4.6 IS:4326C18.3 IS:4326C18.4.2 IS:4326C18.4.3 IS:4326C18.4.3 IS:4326C18.4.3 IS:4326C18.4.4
8	Verticalreinforcingbar At corner sand Tjunction of walls at jambs of doors and windowopenings		IS:4326C18.4.8 IS:4326C18.4.9
9	Integration of prefab roofing/flooring elements through reinforced concrete screed		IS:4326C19.1.4
10	Horizontal bracings in pitched truss in horizontal plane at the level ofties 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)IPindicated“InformationProvided”

IP indicates “Information to be provided”

NA indicates “Not Applicable”

Tickmarkonebox

Part3	**Rein forced concrete framed buildings**		
Sl.No.	**Description**	**Information**	**Notes**
1	Type of building • Regular frames • Regular frames with Shear Walls • Irregular frames • Irregular frames with Shear Walls • Soft storey	Regular frames Soft storey	IS:1893C17.1
2	Number of basements	NIL	
3	Number of floors including ground floor	STILT+4+TERRACE	
4	Horizontalfloorsystem • Beams and slabs • Waffles • Ribbedfloor • Flatslabwithdrops • Flatplatewithoutdrops	BEAMS AND SLABS	
5	Soil data • Type of soil • Recommended type of foundation – Independent footings	CLAY	IS:1498

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	– Raft – Piles • Recommended bearing capacity of soil • Recommended type, length, diameter and load capacity of piles • Depth of water table • Chemical analysis of groundwater • Chemical analysis of soil	SBC163-474 KN/m2	
6	Foundations Depth below ground level Type Independent Interconnected Raft Piles	INDEPENDENT@ 3M depth	
7	System of interconnecting foundations Plinth beams Foundation beams	PLINTH BEAMS	IS:1893C17.12.1
8	Grades if concrete used in different parts of building	M25	
9	Method of analysis used	DISPLACEMENT METHOD	
10	Computer software used	STADD PRO	
11	Torsionincluded	YES	IS:1893C17.9
12	Baseshear a. Basedonapproximatefundamentalperiod b. Basedondynamicanalysis c. Ratioofa/b		IS:1893C1.7.5.3
13	Distribution of seismic forces along the height of the building		IS:1893C1.7.7 (Providesketch)
14	The Column of soft grounds to rey specially designed		IS:1893C1.7.10
15	Clear minimum cover provide din Footing Column Beams Slabs Walls	 - 25MM - 25MM - 16MM - 12MM	IS:456C1.26.4
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	FE550 230MM 230MM	IS:456C1.5.6 IS:13920C1.6.1 IS:13920C1.7.1.2 IS:456C1.26.5.1(a) IS:13920C1.6.2.1 IS:456C1.26.5.1.1(b) IS:13920C1.6.2.2

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	reinforcementatanysectionofbeam • Spacing of transverse reinforcement in 2-d length of beams near the ends • Ration of capacity of beams in shear to capacity of beams in flexure • Maximum percentage of reinforcement in column • 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		IS:13920C1.6.3.5 IS:456C1.26.5.3.1 IS:13920C1.7.4
17	Does the features require clearance by SDRP Example: High rise building Prefab building Buildinginhazardproneareas	NO	

Foundation

i. Incaseraftfoundationhasbeenadopted,indicateKvalueusedforanalysisoftheraft.

ii. In case 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.

IdealizationforEarthquakeanalysis

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 thatused for design of each system.

ii. Indicate the idealization of frames and shear walls adopted in the analysis with the help of sketches.

iii. Submitframingplansofeachfloor

iv. Incaseofbasements,indicatethesystemusedtocontainearthpressures.

Part3	**Buildingsinstructuralsteel**		
1	Adoptedmethodofdesign	• Simple • Semi-rigid • Rigid	IS:800Cl3.4.4 IS:800Cl3.4.5 IS:800Cl3.5.6
2	Designbasedon	• Elasticanalysis • Plasticanalysis	IS: 800Section-9 Sp;6(6)
3	Floorconstruction	• Composite • Noncomposite • Boarded	
4	Roofconstruction	• Composite • Noncomposite • Metal • Anyother	
5	Horizontal force resisting system adopted	FramesBraced frames	Note: Seismic force As per Is:1893 Would depend on system

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		Frames&shearwalls	
6	Slendernessratiosmaintained	Members defined in Table 3.1, Is:800	IS800;Cl.3.7
7	Memberdeflectionlimitedto	Beams,Rafters Crane Girders, Purlins Top of columns	IS:800Cl.3.13
8	Structuralmembers	• Encased in concrete Notencased	Is:800Section-10
9	Proposedmaterial	• Generalweld-able • Highstrength • Coldformed • Tubular	IS:2062 Is:8500 IS:801,811 IS:806
10	Minimum metal thickness Specified for corrosion protection	• Hotrolledsections • Coldformedsections • Tubes	IS: 800, Cl.3.8 Cl.3.8.1 to Cl.3.8.4 Cl.3.8.5
11	Structuralconnections	• Rivers • CTBolts • SHFGBolts • BlackBolts • Weldingfield Shop (Specify welding type proposed) Composite	IS:800,Section–8 IS:1929,2155,1149 IS6639,1367 IS3757,4000 IS:1363,1367 IS:816,814,1395, 7280,3613,6419, 6560,813,9595
12	Minimum Fire rating proposed, with method	• Rating .....Hours • Methodproposed. – Intumescentpainting – Spraying – Quilting – Fireretardantboarding	IS:1641,1642,1643

Part–5

Any special weakness in the building making it vulnerable for stability related failure and theprecaution 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 ofswimmingpool,heavyloadonroofprefabricatedstructureoranyotherhazardousfeaturesshouldbe included.

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