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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	S No. 257, Kazhipattur Village, Thiruporur Taluk, Chengalpattu district, Kazhipattur, Chennai 603103 TN	
2.	Name of Owner/Represented By	M/S Emerald HavenBuilders Pvt. Ltd.	
3.	Name of Registered Developer along with the Registration Number		
4.	Name of Registered Architect/Engineer along with the Registration Number	Shrishti design consultants	
5.	Name of Registered Structural engineer along with the Registration Number	Mr.P. PRADEEP CGLRGN/SE/Gr-1/2019/05/007.	
6.	Use of the building	RESIDENTIAL USE	
8.	Number of basements below Ground level	1	
9.	Type of structure Load bearing walls R.C.C. Frame R.C.C.FrameandShearWa lls SteelFrame	RCC Frame	
10.	Soil data Type of soil Design safe bearing capacity	GREY BROWN WEATHERED ROCK 35T/m^2	IS:1893C1. 6.3.5.2 IS:1904 IS:1892 IS:2131 IS:2720
11.	Dead loads (unit weight adopted) ▫ Earth ▫ Water ▫ Brickmasonry ▫ Plain cementconcrete ▫ Reinforced cementconcrete ▫ Floorfinish ▫ Other fillmaterials ▫ Light weight masonry	 18KN/m^3 10KN/m^3 18KN/$m^2$24K N/m^3 25KN/m^3 1.5KN/m^2 0 KN/m^2 10 KN/m^2	IS: 875 Part 1

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12.	Imposed (Live) Loads Floor load Roof Load	2KN/m^2 1.5KN/m^2	IS: 875 Part 2
13.	Cyclone/Wind ▫ Speed ▫ Design pressureintensity	50 m/s 1.68 KN/m^2	IS: 875 Part 3
14.	Seismic zone	Zone III	IS: 1893 (2016)
15.	Importance factor	1.2	IS:1893(2016) Table 8
16.	Seismic zone factor (Z)	0.16	IS:1893 Table 3
17.	Response reduction factor	4.0	IS:1893 Table 9
18.	Fundamentalnaturalperiod–approx.	As per analysis model	IS:1893
19.	Design horizontal acceleration spectrum value, (Ah)	In x -0.06 In Y -0.06	IS: 1893 C1.6.4.2
20.	# Expansion/Separation Joints		
21.	Building is Regular/irregular	Regular	IS 1893

Enclosedetaileddrawingsdrawntoscaleforeachfloor

- Incaseterracegardenisprovided,indicateadditionalfillloadandliveloadalongwiththe detailed drawings drawn toscale.

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Part 2	Load bearing masonry buildings		
Sr.No.	Description	Information	Notes
1.	Building category	NA	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	NA	
3.	Number of floors including Ground Floor (all floors including stepped floors in hill slopes)	Ground Floor	
4.	Type of wall masonry	Brick/Solid Block	
5.	Type and mix of Mortar	CM 1:3, 1:4 & 1:5	IS: 4326 C1.8.1.2
6.	Size and position of openings (See note No.[i]) ▫ Minimum distance(b5) ▫ Ratio (b1+b2+b3)/11 (b6+b7)/12 ▫ Minimum pierwidth between consequent opening (b4) ▫ Vertical distance(h3) ▫ Ratio of wall heightto thickness 4Ratio of wall length between cross wall to thickness	Refer Joineries in Plan Provided as per codal provisions	IS: 4326 Table 4, Fig.7
7.	Horizontal seismic band ▫ at plinthlevel ▫ at window sillevel ▫ at lintellevel ▫ at ceilinglevel ▫ at eave level of sloping roof ▫ attopofgablewalls ▫ attopofridgewalls	P IP NA P p p NA N A N A	(see noteNo.2) IS:4326C18.4.6 IS:4326C18.3 IS:4326C18.4.2 IS:4326C18.4.3 IS:4326C18.4.3
8.	Vertical reinforcing bar at corners and T junction of walls at jambs of doors and window openings	As per codal Provisions	IS: 4326 C1 8.4.8. IS: 4326 C1 8.4.9

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9.	Integration of prefab roofing/flooring elements through reinforced concrete screed.	NA	IS:4326 C1 9.1.4
10	Horizontal bracings inpitched trussinhorizontalplaneatth e leveloftiesintheslopesof pitched roofs	N A	

Notes: (i) InformationinItem6shouldbegivenonseparateA4sheetsforallwallsw ithlargenumber ofopenings

(ii) IP indicated "Information Provided"

IPindicates"Informationtobep

rovided" NA indicates

"NotApplicable"

Tick mark one box

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Part 3	Reinforced Concrete Framed Buildings		
Sl. No.	Description	Information	
1.	Type of building ▫ Regularframes ▫ Regular frames with ShearWalls ▫ Irregularframes ▫ Irregular frames with ShearWalls ▫ Softstory	Regular Frames	IS: 1893 C1 7.1
2.	Number of basements	1	
3.	Number of floors including ground floor	B+G+5	
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 ofSoil ▫ Recommended type, length, Diameterandloadcapacityof piles ▫ Depth of watertable ▫ Chemical analysis of groundwater ▫ Chemical analysis ofsoil	GREY BROWN WEATHERED ROCK Isolated Foundation Raft 35.00 T/m^2 NA As Per Soil Report NA See Annexure	
6.	Foundations Depth below ground level Type Independent Interconnected Raft Piles	3.5 m Isolated Foundation	
7.	System of interconnecting foundations Plinth beams Foundation beams	Plinth Beams	IS: 1893 C1 7.12.1
8.	Gradesifconcreteusedindifferent parts ofbuilding	M30 FOR All work	

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9.	Method of analysis used	Elastic Analysis	
10	Computer software used	ETABS	
11.	Torsion included	Yes	IS: 1893 C1 7.9
12.	Base shear a. Based onapproximate fundamentalperiod b. Based on dynamicanalysis c. Ratio ofa/b	As per analysis NA NA	IS: 1893 Cl. 7.5.3
13.	Distribution of seismic forces along the height of the building	Refer Sketch	IS:1893 Cl.7.7 (Provide sketch)
14.	The Column of soft ground story specially designed.	NA	IS: 1893 Cl.7.10
15.	Clear minimum cover provided in Footing Column Beams Slabs walls	 75mm 40mm 40mm 20mm 40mm	IS:456 Cl. 26.4
16.	Ductile detailing of RC frame ☐ Type of reinforcement used ☐ Minimum dimension dBeams ☐ Minimum dimension dColumns ▫ Minimum percentage of reinforcementofbeams at any crosssection ▫ Maximum percentage of reinforcementatanysecti on 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	FE 550 200 x 600 mm 200x 800 mm $0.24\frac{\sqrt{fck}}{fy}$ $\frac{0.85/\ bD}{fy}$ 0.04bD 100 mm 0.025	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.26.5.3.1a

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	☐ 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 story.	4% 8mm 100 mm c/c	IS: 13920 Cl. 7.4
17.	Doesthefeaturesrequireclearance bySDRP Example: High rise building Prefab building Building in hazard prone areas	NA	

Foundation

i. Incaseraftfoundationhasbeenadopted,indicateKvalueusedforanalysisoftheraft.

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 existingwatertable,andthatassumedtodesignfoundations.

Idealization for Earthquake analysis

i. Incaseofcompositesystemofshearwallsandrigidframes,givedistributionofbasesheari n thetwosystemsonthebasisofanalysis,andthatusedfordesignofeachsystem

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

iii. Submit framing plans of eachfloor

iv. Incaseofbasements,indicatethesystemusedtocontainearthpressures

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art 4	Buildings in structural steel		
Sl. No.	Description	Information	Notes
1.	Adopted method of design	o Simple o Semi-rigid o Rigid	IS:800 Cl3.4.4 IS:800Cl.3.4.5 IS:800Cl.3.5.6
2.	Design based on	o Elasticanalysis o Plasticanalysis	IS: 800 Section-9 SP;6 (6)
3.	Floor construction	o Composite o Noncomposite o Boarded	
4.	Roof construction	o Composite o Noncomposite o Metal o Anyother	
5.	Horizontalforce resistingsystem adopted	Frames & Braced frames	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 limited to	Rafters Span/180 Purlins-Span/200 Column-Height/60 Canopy-Span/120	IS:800 Cl.3.13
8.	Structural members	o Encased inconcrete o Notencased	IS: 800 Section-10
9.	Proposed material	o Generalweld-able o Highstrength o Coldformed o Tubular	IS:2062 IS:8500 IS: 801, 811 IS: 806

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10.	Minimum metal thickness Specified for corrosion protection	o Hot rolledsections-10mm o Cold formedsections-2mm 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 CTBolts o S H F GBolts o BlackBolts o Weldingfield 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 2 hours o Method proposed. -In tumescent painting -Spraying -Quilting -Fire retardant boarding	IS: 1641, 1642, 1643

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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

RecommendationsofstructuralEngineerwithrespecttospecialrequiremen tsneededwithrespectto structuralsafetyandstabilitytobetakennoteofbycompetentauthorityfeatu relikeincorporationof swimming pool, heavy load on roof ,prefabricated structure or any other hazardous features should beincluded.

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For

Designage
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Vastu & Property Management Tools

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