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Verified RealEstate™
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India

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+91 9996 12 9996
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DIGITALLY VERIFIED RECORD

GCON ENGINEERS
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STRUCTURAL STABILITY CERTIFICATE

The detailed engineering and structure design of the proposed construction Residential Non High Rise building consists **of (Podiam Villa) Stilt + Two Floor with 30 dwelling units, (Apartment) Ground + Four Floor with 91 dwelling units and (Villa) Ground + First Floor with 8 dwelling units** comprising of floors at S.No.. 287/3C, 287/4A, 287/5A1, 287/5B, 287/5C, 287/5D1, 287/6A, 287/6B1, 287/7E3, 287/7F3, 287/7G3, 287/7H3, 287/7I3, 287/7J, 287/7K, 287/8,287/9A3, 287/9B3, 287/9C1, 287/11C, 287/12A, 287/13A, 287/13B, 287/14, 287/15, 287/16A, 288/7A, 288/8C, 288/9A, 288/9B, 288/9C, 288/9E1, 288/10, 288/11A, 288/11B, 288/12A1, 288/12B1, 289/2A, 289/2B, 289/2C, 289/2D, 289/2E, 289/2F, 289/2G, 289/2H, 289/3A, 289/3B, 289/3C, 289/3D, 289/4, 290/15D3, 290/15F1, 290/15G1, 290/15H1, 290/15I1- of Thiruvidanthai Village, Mamallapuram LPA, Tiruporur Taluk, Chengalpattu District. has been done by me/us based on the report of geotechnical investigation (soil test) done by **MINERVA CIVIL TESTING LAB PRIVATE LTD** Report No. **R2305081 Dated 10/05/2023**. 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 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 875and design of earthquake resistant structure as per IS Code No 1893:2016

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

G1 , EKAMBARAM STREET ,PAMMAL, CHENNAI-600075.
phone : +91-9566163232 , mail: gconchennai@gmail.com
web: www.gconengineers.com.

Er.S.MOSES ARANGANATHAN
B.E., M.E(Struct.) FIE, FIA(Struct,)., FIV.,
DTCP Registered Structural Engineer-Grade-I (RSE)
DTCP Reg.No. TVLR/RSE/Gr-I/2024/07/006
Maduravoyal, Chennai - 600095
Email Id: mosessomu@gmail.com

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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	REPUBLIC OF NATURE Phase IISno:287/3C, 287/4A, 287/5A1, 287/5B, 287/5C, 287/5D1, 287/6A, 287/6B1, 287/7E3, 287/7F3, 287/7G3 287/7H3, 287/7I3,287/7J, 287/7K, 287/8, 287/9A3, 287/9B3, 287/9C1, 287/11C, 287/12A, 287/13A, 287/13B, 287/14, 287/15, 287/16A, 288/7A, 288/8C, 288/9A, 288/9B, 288/9C, ,288/9E1, 288/10, 288/11A, 288/11B, 288/12A1, 288/12B1, 289/2A, 289/2B, 289/2C, 289/2D, 289/2E, 289/2F, 289/2G, 289/2H, 289/3A, 289/3B, 289/3C, 289/3D, 289/4, 290/15D3, 290/15F1, 290/15G1, 290/15H1, 290/15I1 AT VADANAMELI VILLAGE (HALMET OF THIRUVEDANTHAI), THIRUPORUR TALUK, CHENGALPATTU DISTRICT	
2	Name of Owner/Power Agent	M/s. GT Bharathi	

G1 , EKAMBARAM STREET ,PAMMAL, CHENNAI-600075.
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web: www.gconengineers.com.

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B.E., M.E(Struct.) FIE, FIA(Struct,)., FIV.,
DTCP Registered Structural Engineer-Grade-I (RSE)
DTCP Reg.No. TVLR/RSE/Gr-I/2024/07/006
Maduravoyal, Chennai - 600095
Email Id: mosessomu@gmail.com

		Urban Developers Pvt Ltd.,	
3	Name of Registered Developer along with the Registration Number	NA	
4	Name of Registered Architect/Engineer along with the Registration Number	NA	
5	Name of Registered Structural engineer along with the Registration Number	S.Moses Aranganathan – TVLR/RSE/Gr-I/2024/07/006	
6	Use of the building	Residential	
7	Number of stories above ground level (including storeys to be added later, if any) 1. Podium Villas(South parcel) 2. Apartment Block-01 3. Independent Ground Villas	1.Stilt+2 2.G+4 3.G+1	
8	Number of basements below ground level 1. Podium Villas(South parcel) 2. Apartment Block-01 3. Independent Ground Villas	NA	
9	Type of structure Load bearingwalls R.C.C. frame R.C.C. frame and Shear Walls Steel frame	RCC frame and Shear Wall	
10	Soil data Type of soil Design safe bearing capacity	Medium 210 KN/m^2	

Er.S.MOSES ARANGANATHAN
B.E., M.E(Struct.) FIE, FIA(Struct,)., FIV.,
DTCP Registered Structural Engineer-Grade-I (RSE)
DTCP Reg.No. TVLR/RSE/Gr-I/2024/07/006
Maduravoyal, Chennai - 600095
Email Id: mosessomu@gmail.com

11	Dead loads (unit weight adopted) • Earth • Water • Brickmasonry • Plain cementconcrete • Reinforced cement concrete • Floorfinish • Other fillmaterials	18 KN/cum 9.81 KN/cum 20 KN/cum 24 KN/cum 25 KN/cum 20 KN/cum	
12	Imposed (live) loads Floor loads Roof loads	2 KN/m^2	
13	Cyclone/Wind • Speed • Design pressureintensity	50 m/Sec	
14	Seismic zone	III	
15	Importance factor	1	
16	Seismic zone factor (Z)	0.16	
17	Response reduction factor	4	
18	Fundamental natural period – approx.	0.32	
19	Design horizontal acceleration spectrum value (A_h)	0.113	
20	♠Expansion/Separation Joints	Provided	
21	Building is regular/irregular	Regular	

♥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		Zone / Bldg. | II III IV V Ordinary Important
2	Basement Provided		NA
3	Number of floors including Ground Floor (all floors including stepped floors in hill slopes)		NA
4	Type of wall masonry		NA
5	Type and mix of Mortar		NA

G1 , EKAMBARAM STREET ,PAMMAL, CHENNAI-600075.
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Er.S.MOSES ARANGANATHAN
B.E., M.E(Struct.), FIE, FIA(Struct,)., FIV.,
DTCP Registered Structural Engineer-Grade-I (RSE)
DTCP Reg.No. TVLR/RSE/Gr-I/2024/07/006
Maduravoyal, Chennai - 600095
Email Id: mosesstru@gmail.com

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 consequentopening (b_4) • Vertical distance(h_3) • Ratio of wall height to thickness4 Ratio of wall length between cross wall to thickness	NA	
7	Horizontal seismic band • at plinthlevel • at window sillevel • at lintellevel • at ceilinglevel • at eave level of sloping roof • at top of gablewalls • at top of ridgewalls	NA	
8	Vertical reinforcing bar at corners and T junction of walls at jambs of doors and window openings	NA	
9	Integration of prefab roofing/flooring elements through reinforced concrete Screed.	NA	
10	Horizontal bracings in pitched truss in horizontal plane at the level of ties in the slopes of pitched roofs	NA	

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DTCP Registered Structural Engineer-Grade-I (RSE)
DTCP Reg.No. TVLR/RSE/Gr-I/2024/07/006
Maduravoyal, Chennai - 600095
Email id: mosesomu@gmail.com

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.	**Description**	**Information**	**Notes**
1	Type of building • Regularframes • Regular frames with ShearWalls • Irregularframes • Irregular frames with ShearWalls • Softstorey	Regular frames with shear walls	
2	Number of basements 1. Podium Villas(North parcel) 2. Apartment Block-01 3. Independent Ground Villas	NA	
3	Number of floors including ground floor 1. Podium Villas(North parcel) 2. Apartment Block-01 3. Independent Ground Villas	1.Stilt+2 2.G+4 3.G+1	

Er.S.MOSES ARANGANATHAN
B.E., M.E(Struct.) FIE, FIA(Struct,)., FIV.,
DTCP Registered Structural Engineer-Grade-I (RSE)
DTCP Reg.No. TVLR/RSE/Gr-I/2024/07/006
Maduravoyal, Chennai - 600095
Email Id: mosessomu@gmail.com

4	Horizontal floor system • Beams andslabs • Waffles • Ribbedfloor • Flat slab withdrops • Flat plate withoutdrops	Beams and slabs	
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	Medium Independent footings 210 KN/m^2 5m	

Er.S.MOSES ARANGANATHAN
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Email Id: mosessomu@gmail.com

6	Foundations Depth below ground level Type Independent Interconnected Raft Piles	2.5 m Independent	
7	System of interconnecting foundations Plinth beams Foundation beams	Beams	
8	Grades if concrete used in different parts of Building	M25	
9	Method of analysis used	Limit State method	
10	Computer software used	Etabs and Autocad	
11	Torsion included	NA	
12	Base shear a. Based on approximate fundamental period b. Based on dynamic analysis c. Ratio ofa/b	Based on dynamic analysis – 1780 Kn	
13	Distribution of seismic forces along the Height of the building.	NA	
14	The Column of soft ground storey specially Designed.	NA	
15	Clear minimum cover provided in • Footing • Column • Beams • Slabs • Walls	Footing -50 mm Column-40 mm Beams -30 mm Slabs -25 mm Walls -40 mm	
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 • 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.	FE 550 D 230 x 450 0.1 % 0.2 % 100 mm 2.5 4% 8 mm at 100 mm	
17	Does the features require clearance by SDRP	NA	

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B.E., M.E(Struct.) FIE, FIA(Struct,)., FIV.,
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Maduravoyal, Chennai - 600095
Email Id: mosessomu@gmail.com

	Example: High rise building Prefab building Building in hazard prone areas		
Part 4	**Buildings in structural steel**		
1	Adopted method of design		
2	Design based on		
3	Floor construction		
4	Roof construction		
5	Horizontal force resisting system Adopted		
6	Slenderness ratios Maintained		
7	Member deflection limited to		
8	Structural members		
9	Proposed material		
10.	Minimum metal thickness Specified for corrosion protection		
11	Structural connections		
12	Mini Fire rating with mum prop osed, meth od		

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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-5

Anyspecial weakness in the buildingmakingit vulnerable for stabilityRelated 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, sound and save or any other hazardous features should be included.

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DTCP Reg.No. TVLR/RSE/Gr-I/2024/07/006
Maduravoyal, Chennai - 600095
Email Id: mosessomu@gmail.com

O/O. THE DISTRICT TOWN & COUNTRY PLANNING OFFICE,
THIRUVALLUR DISTRICT.

No.43/397A, 2nd Floor, Annai Indira Gandhi Road, Rajajipuram Phase-II, Thiruvallur - 602 001.
E-mail : dtcptiruvallur@gmail.com, Phone : 044-29595440.

PROFESSIONAL REGISTRATION CERTIFICATE

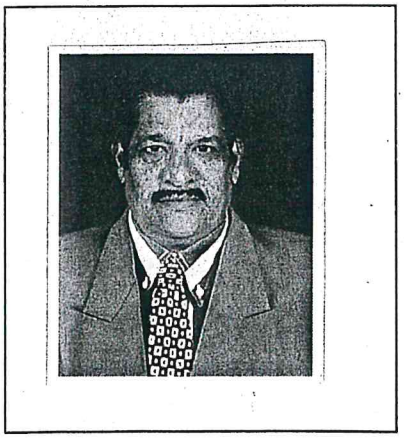
This is to certify that **Dr.S.Moses Aranganathan** has enrolled as **Registered Structural Engineer Grade-I (RSE)** with the O/o.the District Town and Country Planning, Thiruvallur District who has the qualification of **B.E., (Civil Engg.), M.E.,(Structural Engg.), Ph.D.,** and experience in the relevant field for **35 Years.**

He has been given the Registration No: **TVLR/RSE/Gr-I/2024/07/006. on 18.07.2024.** He Shall be required to comply with the duties and responsibilities prescribed by the Government of Tamil Nadu in Part V "Registration of Professionals", Tamil Nadu Combined Development and Building Rules, 2019 approved vide **G.O.(Ms).No.18, MAWS (MA.1) Dept., Dated:04.02.2019.**

This Registration is valid upto **17.07.2029.**

GLCON ENGINEERS This Certificate is valid for only this project

This Certificate is valid for only this project GLCON ENGINEERS



Assistant Director,
District Town & Country Planning Office,
Thiruvallur District.

18/7/24

THE LANDLENS SUITE

Eight ways to know a piece of land before you pay for it.

This report covers one part of the picture. These cover the rest, drawn from the same government records, for any property in Tamil Nadu.

LandLens One
Ask anything about a property and get an answer grounded in live government records, with the sources shown.
/landlens/one

Verify My Land
Every record check run on one property and returned as a single report.
/landlens/verify-my-land

Legal Opinion
An advocate's written opinion on the title, built on the records we pull for it.
/landlens

One Map
Every layer on one map: the parcel, its boundary, zoning, water bodies and what sits around it.
/landlens/one/map

PriceMap
What land actually changed hands for around this plot, taken from the registered deeds.
/landlens/pricemap

Build Scope
What you are allowed to build here: floor space, height, coverage and setbacks.
/landlens/build-scope

Property Tracker
Watch a property and hear about it when something new is registered against it.
/landlens/property-tracker

Deal Room
Run the transaction in one place: documents, stamping, signatures and the parties.
/landlens/deal-room

FREE TOOLS · NO ACCOUNT NEEDED

Twenty-four checks you can run yourself, at no cost.

Records and verification

The registers themselves, read for you.

- Encumbrance Certificate
- Patta and Chitta
- Field Measurement Sketch
- EC Analyzer
- Bank charge check
- Court case search
- Seller background check
- Approval check by survey

Value and duty

What it is worth and what it costs to register.

- Guideline value by street
- Guideline value by survey
- Stamp duty and registration fees
- Capital gains
- Floor space index
- Area unit converter

Zoning and land use

What the plan says can happen on this land.

- Land use zone finder
- CMDA land use check
- Coastal regulation zone
- Master plan check
- Water bodies finder
- Airport height clearance

Registers and directories

Who holds it, and which office keeps the record.

- Find your registering office
- Temple property check
- Waqf property check
- RERA register

Every free tool
/tools

Services we run for you
/services

The LandLens suite
/landlens/one

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Every claim in this document traces back to a government record.

- Legal opinions, due diligence and title verification
- Building plan, layout and sub-division approvals
- Completion and occupancy certificates, regularisation
- Escrow, negotiation and NRI property management
- Land survey, soil testing, architecture and construction

Verified RealEstate
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India
hello@verified.realestate
+91 9996 12 9996

Prepared from the registers named on the page each finding sits on. Where a register could not be read, this document says so in its place rather than leaving the gap to be read as a clean result.