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RE REGULATORY RECORD

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DIGITALLY VERIFIED RECORD

MADURAA CONSULTANTS

216/17-4, KMS Garden, Lotus Nagar,
Salem - 636016. Tamil Nadu.
Ph: 96776 66102, 90666 22951
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20.6.2025

STABILITY CERTIFICATE

The detailed engineering and structure design of the proposed building comprising of Stilt + Five (5) floors at 45 Dwelling units Old Ward-H, Block-25, 27. T.S.No.-33/9, 13/2, New Ward - AA, Block-66, T.S.No. – 129/2, 129/3, Annathanapatti Village, Salem City Municipal Corporation, Salem South Taluk, Salem District has been done by me based on the report of geotechnical investigation (soil test) done by Surya Builders Report No. 2023-2024/06/014 Dated: 14/06/2024 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 have checked various parameters and found that the proposed building would be safe.

3. I 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 875 and design of earthquake resistant structure as per IS Code No 1893 & 13920 are Carried out.

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

Encl.:Structural Design Calculation

N. MANIVASAGAM, M.Tech(Struct), M.I.E
Chartered Engg. Reg. No: M 1696275
Reg. Structural Engineer Grade-1
CMDA Reg. No: SE/GR-1/2020/12/284
GCC Reg. No: RSE 101292020
Salem LPA Reg. No: 24/RSE-1/2024
216/17-4, KMS Garden, Lotus Nagar,
SALEM-16. ✆:9677666102, 9066622951

LOAD CALCULATIONS

PROPOSED CONSTRUCTION OF METROPOLE – OG TOWERS APARTMENT IN SALEM

N. MANIVASAGAM, M.Tech(Struct), M.I.E
Chartered Engg. Reg. No: M 1696275
Reg. Structural Engineer Grade-1
CMDA Reg. No: SE/GR-1/2020/12/284
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Salem LPA Reg. No: 24/RSE-1/2024
216/17-4, KMS Garden, Lotus Nagar,
SALEM-16. ✆:9677666102, 9066622951

1		LOAD CALCULATION REPORT				
Rev.	20.6.25	Description/issued for	Prepared by	Checked by	Approved by	

	Client:	1. OGV.GOVINDAVENKATRAMAN, 2. S.RENUKA, 3. K.UMARANI, 4. T.VIJALAKSHMI, 5. J.VENKATAKRISHNAN
	Project:	METROPOLE – OG TOWERS APARTMENT AT SALEM TAMILNADU - INDIA.
	Title:	LOAD CALCULATION REPORT

Office:	India	Order:		document:		Rev:	0	Sheet:		of:	3

FLOOR LOADS:

I. FLOOR LOAD :

Floor finish	0.075x20	=	1.5 kN/m^2
Sand Filling (0.2x18)		=	4.14 kN/m^2
Sunken		=	**5.64 kN/m^2**
	Say	=	**5.6 kN/m^2**

II. TERRACE FLOOR:

Floor finish & weathering Coarse (0.125x20) = 2.5 kN/m^2

III. LIVE LOADS:

- Live load = 2.5 kN/m^2
- **Terrace = 1.5 kN/ m^2**
- Corridor = 4 kN/ m^2

IV. WALL LOAD CALCULATIONS:

GROUND FLOOR:

1. Wall load for Plinth beam to Stilt Beam level:

   (3.15+0.600-0.38x0.23x20) = 15.5 kN/ m^2

FIRST FLOOR TO FIFTH FLOOR (TYPICAL FLOORS):

2. Wall Load for stilt Floor Roof level to

   First Floor Roof level:

   (3.15-0.38 x 0.23 x 20) = 12.5 kN/ m^2

WATER TANK :

3. Wall load for water tank bottom level:

   (1.52-0.38x0.23x25) = 6.55 kN/ m^2

PARAPET :

4. Wall load for Parapet level:

0.9x0.23x20 = 4.2 kN/ m^2 **(Say 4.5)**

HEAD ROOM :

5. Wall load for terrace level to Head Room Roof top level:

(3.15x0.23x20) = 14.49 kN/ m^2

V. STAIRCASE LOAD CALCULATION:

Self weight	**(0.20x1x25)**	=	**5 kN/ m^2**
Floor Finish		=	1.00 kN/ m^2
R.C.C Steps	(0.15/2)x22	=	1.65 kN/ m^2
Live Load		=	**4.00 kN/ m^2**
		=	11.65 kN/ m^2
		=	12 kN/ m^2
Total Load	**(12x4.88)**	=	**58.56 kN/ m^2**
Load on One beam	(58.56/2)	=	29.28 kN/ m^2
	Say	=	**30 kN/ m^2**
Plinth beam full wall load		=	**15.5 kN/ m^2**
Plinth beam Mid landing Load	(15.5/2+30)	=	37.75 kN/ m^2
Stilt beam full wall load		=	12.5 kN/ m^2
Stilt beam Mid landing Load	**(12.5+30)**		**=42.5 kN/ m^2**

DESIGN BASIS REPORT

PROPOSED CONSTRUCTION OF METROPOLE – OG TOWERS APARTMENT IN SALEM

N. MANIVASAGAM, M.Tech(Struct), M.I.E
Chartered Engg. Reg. No: M 1696275
Reg. Structural Engineer Grade-1
CMDA Reg. No: SE/GR-1/2020/12/284
GCC Reg. No: RSE 101292020
Salem LPA Reg. No: 24/RSE-1/2024
216/17-4, KMS Garden, Lotus Nagar,
SALEM-16. ✆:9677666102, 9066622951

1	20.6.25	DESIGN BASIS REPORT / PROOF CHECKING				
Rev.	Date	Description/issued for	Prepared by	Checked by	Approved by	
	Client:	1. OGV.GOVINDAVENKATRAMAN, 2. S.RENUKA, 3. K.UMARANI, 4. T.VIJALAKSHMI, 5. J.VENKATAKRISHNAN				
	Project:	PROPOSED CONSTRUCTION OF METROPOLE – OG TOWERS APARTMENT IN SALEM				
	Title:	DESIGN BASIS REPORT				

Office:	India	Order:		document:		Rev:	0	Sheet:		of:	10

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3.REFERENCES,CODES AND STANDARDS : The following codes and standards have been referred.

CODE OF PRACTICE FOR DESIGN LOADS (OTHER THAN EARTHQUAKE) FOR BUILDINGS AND STRUCTURES	
IS 875 Part 1 - 1987	Dead Loads - Unit weights of building Materials and stored materials.
IS 875 Part 2 - 1987	**Imposed loads.**
IS 875 Part 3 - 2015	Wind Loads.
IS 875 Part 5 - 1987	Special Loads and Combinations.
CODE OF PRACTICE FOR DESIGN	
IS 456 : 2000	**Plain and Reinforced Concrete Code of Practice.**
IS 1893(Part - 1): 2016	Criteria for Earthquake resistant design of structures (General provision and buildings).
IS 3370-(Part-1&2)-2009 **IS 3370-Part-IV-1967**	Code of practice for concrete structures for storage of **liquids. & Design Tables.**
IS 13920-2016	Code of practice for ductile design and detailing of reinforced concrete Structures subjected to seismic forces.
IS 1786-2008	**Specification for high strength deformed steel bars and wires for concrete reinforcement.**
SP - 24 – 1983	Explanatory hand book on Indian standard code of practice for plain and reinforced concrete.
SP - 16 : 1980	Design aids for reinforced concrete to IS 456 - 1978.
SP - 34(S&T) - 1987	**Hand book on concrete reinforcement and detailing.**
IS 1904 - 1986	Code of Practice for design and construction of foundations in soil : General requirements.
IS 2950 (Part I) -1981	Code of Practice for design & construction of raft Foundation.
SP – 38 (S&T) – 1987	**Handbook of typified designs for structures with steel Roof trusses.**
IS 800 : 2007	Code of practice for General construction in steel.

IS 808 : 1989	Dimensions for hot Rolled steel Beam, Column, Channel and Angle section.

4.LOAD DEFINITIONS :

4.1 Dead Loads (DL) :

Dead Load shall be the total weight of the materials forming the permanent part of structure. The Unit weights of materials and components shall be as per the code defined.

Self weights of the slabs are inbuilt with ETABS software at the time of application.

(i) Concrete unit weight is taken as 25 kN/m^3

(ii) Brick unit weight is taken as 20 kN/m^3

(iii) Water unit weight is taken as 10 kN/m^3

(iv) Sand (Toilet sunken) unit weight is taken as 18 kN/m^3

4.2 Live Loads (LL) :

Live Loads are all movable super imposed loads such as movable partitions, occupants and movable equipment, but not including wind or equipment dynamic loads. Live Loads shall be as specified in IS 875 Part 2 - 1987 Table 1.

I. EARTHQUAKE LOAD CALCULATIUON (EL):

Seismic loads are considered for Zone II as per IS 1893 (Part-1) : 2016.

Zone Factor	= 0.16
Importance Factor	= 1
Response reduction Factor (Special Moment Resisting Frames)	= 5
Damping	= 5%
Soil Type	= II

Time Period:

Time period are considered as per IS 1893(PART - 1): 2016 Clause No. 7.6.2(C)

$$0.075*(18.9)^{0.75} = 0.67$$

4.5 Loading Combinations :

SERVICEABILITY COMBINATION

1) 1.0 D.L + 1.0 L.L
2) 1.0 D.L + 1.0 W.L – (+X DIRECTION)
3) 1.0 D.L + 1.0 W.L – (-X DIRECTION)
4) 1.0 D.L + 1.0 W.L – (+Y DIRECTION)
5) 1.0 D.L + 1.0 W.L – (-Y DIRECTION)
6) 1.0 D.L + 1.0 E.L – (+X DIRECTION)
7) 1.0 D.L + 1.0 E.L – (-X DIRECTION)

8) 1.0 D.L + 1.0 E.L – (+Y DIRECTION)

9) 1.0 D.L + 1.0 E.L – (-Y DIRECTION)

10) 1.0 D.L + 0.8 L.L + 0.8 W.L (+X DIRECTION)

11) 1.0 D.L + 0.8 L.L + 0.8 W.L (-X DIRECTION)

12) 1.0 D.L + 0.8 L.L + 0.8 W.L (+Y DIRECTION)

13) 1.0 D.L + 0.8 L.L + 0.8 W.L (-Y DIRECTION)

14) 1.0 D.L + 0.8 L.L + 0.8 E.L (+X DIRECTION)

15) 1.0 D.L + 0.8 L.L + 0.8 E.L (-X DIRECTION)

16) 1.0 D.L + 0.8 L.L + 0.8 E.L (+Y DIRECTION)

17) 1.0 D.L + 0.8 L.L + 0.8 E.L (-Y DIRECTION)

ULTIMATE COMBINATION

18) 1.5 D.L + 1.5 L.L

19) 1.5 D.L + 1.5 W.L (+X DIRECTION)

20) 1.5 D.L + 1.5 W.L (-X DIRECTION)

21) 1.5 D.L + 1.5 W.L (+Y DIRECTION)

22) 1.5 D.L + 1.5 W.L (-Y DIRECTION)

23) 1.5 D.L + 1.5 E.L (+X DIRECTION)

24) 1.5 D.L + 1.5 E.L (-X DIRECTION)

25) 1.5 D.L + 1.5 E.L (+Y DIRECTION)

26) 1.5 D.L + 1.5 E.L (-Y DIRECTION)

27) 0.9 D.L + 1.5 W.L (+X DIRECTION)

28) 0.9 D.L + 1.5 W.L (-X DIRECTION)

29) 0.9 D.L + 1.5 W.L (+Y DIRECTION)

30) 0.9 D.L + 1.5 W.L (-Y DIRECTION)

31) 0.9 D.L + 1.5 E.L (+X DIRECTION)

32) 0.9 D.L + 1.5 E.L (-X DIRECTION)

33)0.9 D.L + 1.5 E.L (+Y DIRECTION)

34) 0.9 D.L + 1.5 E.L (-Y DIRECTION)

35) 1.2 D.L+ 1.2L.L+1.2W.L (+X DIRECTION)

36) 1.2 D.L+ 1.2L.L+1.2W.L (-X DIRECTION)

37) 1.2 D.L+ 1.2L.L+1.2W.L (+Y DIRECTION)

38) 1.2 D.L+ 1.2L.L+1.2W.L (-Y DIRECTION)

39) 1.2 D.L+ 1.2L.L+1.2E.L (+X DIRECTION)

40) 1.2 D.L+ 1.2L.L+1.2E.L (-X DIRECTION)

41) 1.2 D.L+ 1.2L.L+1.2E.L (+Y DIRECTION)

42) 1.2 D.L+ 1.2L.L+1.2E.L (-Y DIRECTION)

(D.L = Dead load, L.L = Live load, W.L = wind load, E.L = Earthquake load,).

Temperature Load is not considered since the lateral dimension of the building is limited as per Clauses 19.5.1 & 27.20 of IS 456:2000.

5 Reinforced concrete works :

5.1 General :

Design of Structural Concrete works shall be in accordance with IS 456:2000.

Design of Truss steel member works shall be in accordance with IS 800:2007.

5.2 Cement and Aggregates :

Cement to be ordinary Portland cement in accordance with (IS 269).

Aggregates shall be accordance with (IS 383).

5.3 Concrete Grades :

Structural Concrete :

Sub & Super Structure – M25

P.C.C - M7.5

5.4 Reinforcing Steel :

Reinforcing Steel Bars shall be CRS (Corrosion resistant steel) Uncoated High Yield deformed bars Fe 500 D of Minimum Characteristic Yield strength of 500 N/mm^2 having elongation of 16%. Deformed bars confirming to IS 1786:2008.

5.5 Description of structural arrangement :

Super structure :

The buildings will be designed as framed structure with columns and beams are Interconnected with flat R.C.C Roof Slab.

Sub structure :

The foundation will be designed generally as per the soil report recommendations.

5.6 Properties for design purpose :

a.	Grade of Concrete fck	- 25 N/mm^2
b.	Grade of Steel fy	- 500 N/mm^2
c.	Young's Modulus of Steel Es	- 200000 N/mm^2
d.	Modulus of Elasticity of Concrete Ec - 5000Vfck	- 25000 N/mm^2

5.7 Development Length of bars :

For M25:

(Ld) In Tension = 50ø

(Ld) In Compression = 40ø

5.8 Cover to Concrete :

Footing	=	50 mm
Column	=	40 mm
Beam	=	30 mm
Slab	=	25 mm
Shear wall	=	25 mm
R.C.C Retaining Wall	=	25 mm

SOIL PROPERTIES & FOUNDATION DEPTH :

6.1 Safe Bearing Capacity of Soil :

Net Allowable bearing capacity of soil is taken as per soil report = 150 KN/m^2

6.2 Analysis and design methodology :

The Building is analyzed as 3-D space structure using finite element method in ETABS the foundations is designed in 'SAFE' software & XL sheets. Fixed condition is considered at supports for 3-D structure & the steel member designed for the using 'ETABS' software, to carryout analysis for various load combinations as per design basis.

CHENNAI METROPOLITAN DEVELOPMENT AUTHORITY
'ThalamuthuNatarajan Building', No.1, Gandhi Irwin Road,
Egmore, Chennai-600 008.

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that **Thiru N. MANIVASAGAM** has enrolled as **Registered Structural Engineer Grade-I (SE)** with Chennai Metropolitan Development Authority (CMDA) who has the qualification of **M.Tech.,(Structural Engg.)** and experience in the relevant field for **06 years.**

He has been given the Registration No.**SE/GR-I/2020/12/284** on **07.12.2020.** 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 (MA1) Dept. dated 04.02.2019.

This Registration is valid upto **06.12.2025**.



CHENNAI METROPOLITAN DEVELOPMENT AUTHORITY ★ CHENNAI-600 008. ★

08/12/2020

(R.SHIVAKUMAR)
ASSISTANT PLANNER
CHENNAI METROPOLITAN DEVELOPMENT AUTHORITY
CHENNAI-600 008.

GREATER CHENNAI CORPORATION
WORKS DEPARTMENT

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that **Thiru. Manivasagam N** has been enrolled as **Registered Structural Engineer Grade- I (RSE)** in Greater Chennai Corporation (GCC) who has the qualification of **M.Tech.,(Structural Engg.,)** with minimum of **5 years** experience in the relevant field.

The Registration No. is **RSE101292020** dated **11.12.2020** It is informed herewith to comply with the scope of work, duties and responsibilities as 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 MA&WS (MA1) Dept. dated 04.02.2019. and as amended in G.O.(MS) No.16 MA&WS (MA1) Dept, dated 31.01.2020.

This Registration is valid upto **10.12.2025.**



Superintending Engineer (Works)
Greater Chennai Corporation.

RGN No: RSE101292020
Dated: 11.12.2020

GOVERNMENT OF TAMIL NADU

TOWN AND COUNTRY PLANNING DEPARTMENT

SALEM DTCP

THE SALEM DISTRICT TOWN AND COUNTRY PLANNING

Phone: 0427-2448625

Email: ddslmregion@gmail.com

Website: www.tn.gov.in/tcp

PROFESSIONAL REGISTRATION CERTIFICATE
RENEWED FROM 01.04.2024 TO 31.03.2029

This is to certify that **THIRU. N. MANIVASAGAM** has enrolled as **Registered Structural Engineer Grade-I (RSE-I)** with Salem District Town and Country Planning who has the qualification of **Master of Technology in Structural Engineering** and experience in the relevant field for 10 years.

He has been given the **Registration No:24/RSE-I/2024 (Renewal).** 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, Municipal Administration and Water Supply (MA1) Department, Dated 04.02.2019.

This Registration is valid upto **31.03.2029.**



22 NOV 2024

சேலம் - 636302

22/11/24

ASSISTANT DIRECTOR,
DISTRICT TOWN AND COUNTRY PLANNING,
SALEM DISTRICT.

22/11/24

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

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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.