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RE REGULATORY RECORD

# RERA Document

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Verified RealEstate™
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Chennai 600 097, India

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DIGITALLY VERIFIED RECORD

GOVT. OF TAMILNADU
TOWN AND COUNTRY PLANNING DEPARTMENT

SALEM DTCP

**THE SALEM DISTRICT TOWN AND COUNTRY PLANNING**

6,Sannathi St,Subramanya Nagar,Suramangalam,
Salem-636 005.
Phone: 0427-2448625.
Email: ddslmregion@gmail.com
Website: WWW.tn.gov.in/tcp

## PROFESSIONAL REGISTRATION CERTIFICATE

**This is to certify that Tmt.*V.BHUVANESHWARI* has enrolled as Structural Engineer Grade-II (SE) with** Salem District Town and Country Planning **(SDTCP).who has the qualification of M.*E.STRUCTURAL ENGG.*, and experience in the relevant field for more than 04 years.**

**She has been given the Registration No: *06/2022, SE- GR II* on *20-12-2022*. She 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 *19-12-2027*.**



10.1.23
ASSISTANT DIRECTOR,
SALEM DISTRICT TOWN AND COUNTRY PLANNING,
SALEM.
10/01/2023
10/1/23

SALEM DTCP

**NARAYANAN CONSTRUCTION**
LICENSED BUILDING SURVEYOR
17/18-B, CONVENT ROAD,
PERIYAPUDUR, (OPP St.John School)
SALEM – 636 016.
Narayanaconstructions555@gmail.com

Er.N.RANJITHKUMAR,B.E.,
Er.V.BHUVANESHWARI, M.E.(Struct)

Ph: 96555 52121, 96555 57679

8.04.2026

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

1. The detailed engineering and structure design of the proposed building comprising of **Stilt + Five (5) floors at 09 Dwelling units Old S.F.No: 116, New S.F. No: 84/2, Corresponding Reservey S.F.No: 84/5, Plot No: C-19, Ward-D, Block-31, T.S.No.-21 in Alagapuram Village, Fairlands, Salem(Tk) & Salem District** has been done by me based on the report of geotechnical investigation (soil test) done by **Shri Balaji Geotech** Report No. **SBGT/CIV/2024-2025/136** Dated: **18/11/2024** 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 grade of concrete for PT is M35.

(iii) 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

V. Bhuvaneshwari

Er.V.BHUVANESHWARI M.E.(S).
NARAYANAN CONSTRUCTIONS
LICENSED BUILDING SURVEYOR
DTCP/SALEM/RE-III/06/2022
No:17/18-B, CONVENT ROAD,
ALAGAPURAM PUDHUR, SALEM-636 016.
Cell: 96555 52121, 96555 57679

# LOAD CALCULATIONS

## PROPOSED CONSTRUCTION OF METROPOLE APARTMENTS AT FAIRLANDS IN SALEM

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | | LOAD CALCULATION REPORT | | | | |
| Rev. | 8.4.26 | Description/issued for | Prepared by | Checked by | Approved by | |
| | | Client: | 1. MR.SHIVASHANKAR KAMATH, 2.MRS.USHA KAMATH, 3.MR.MANMOHAN KAMATH, 4. MRS.BHUVANA KAMATH. | | | |
| | | Project: | METROPOLE — APARTMENT AT FAIRLAND IN SALEM TAMILNADU - INDIA. | | | |
| | | Title: | LOAD CALCULATION REPORT | | | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Office: | India | Order: | | document; | | Rev: | 0 | Sheet: | | of: | 3 |

V.Bhuvaneshwari

Er.V.BHUVANESHWARI M.E (Struct.)
NARAYANAN CONSTRUCTIONS
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ALAGAPURAM PUDHUR, SALEM-636 016.
Cell: 96555 52171, 0427 255 57679

## FLOOR LOADS:

I. **FLOOR LOADS:**

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

II. **TERRACE FLOOR:**

| | | | |
|---|---|---|---|
| Floor finish & weathering coarse (0.15x20) | | = | 3.0 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:
   (3.15-0.600-0.38 x0.23 x20) = 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 x0.23 x20) = 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 | | = | 4.14 kN/m$^2$ |

**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) | = | 5.00 kN/m$^2$ |
| Floor Finish | | = | 1.00 kN/m$^2$ |
| R.C.C Steps | (0.15/2)x22 | = | 1.65 kN/m$^2$ |
| Live Loads | | = | 4.00 kN/m$^2$ |
| | | = | 11.65 kN/m$^2$ |
| | | = | 12.00 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$^2$ |
| Plint 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 APARTMENTS

## AT NEW FAIRLANDS IN SALEM

| | | | | | | |
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|---|---|---|---|---|---|---|---|---|---|---|---|
| Office: | India | Order: | | document; | | Rev: | 0 | Sheet: | | of: | 3 |


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V. Bhuvaneshwari


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| SL.NO | TABLE OF CONTENT | PAGE No |
|---|---|---|
| 1. | INTRODUCTION | 3 |
| 2. | SITE CONDITIONS | 3 |
| 3. | REFERENCES, CODES AND STANDARDS | 4 |
| 4. | LOAD DEFINITIONS<br>4.1 Dead Loads (DL)<br>4.2 Live Loads (LL)<br>4.3 Wind Loads (WL)<br>4.4 Earthquake Load (EL)<br>4.5 Loading Combinations | <br>5<br>6<br>6<br>6<br>7 |
| 5. | REINFORCED CONCRETE WORKS<br>5.1 General<br>5.2 Cement and Aggregates<br>5.3 Concrete Grades<br>5.4 Reinforcing Steel<br>5.5 Description of structural arrangement<br>5.6 Properties for design purpose<br>5.7 Development Length of bars<br>5.8 Cover to Concrete | <br><br>9<br>9<br>9<br>9<br>9<br>10<br>10<br>10 |
| 6. | SOIL PROPERTIES & FOUNDATION<br>6.1 Bearing Capacity of Soil<br>6.2 Analysis and design methodology | 10<br><br>10 |


**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). |
| IS3370-(Part-1&2)-2009<br>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/m3

(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-I): 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 EL - (-X DIRECTION)

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|---|---|---|---|---|---|---|---|---|---|---|---|
| Office: | India | Order: | | document; | | Rev: | 0 | Sheet: | | of: | 3 |

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 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 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 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 -500 root of fck - 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 = 345 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.

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

Verified RealEstate™

# 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.