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RE REGULATORY RECORD

RERA Document

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

hello@verified.realestate
+91 9996 12 9996
verified.realestate

J.PRABAKARAN ,M.E
STRUCTURAL ENGINEER,
No. 1/4, PIDARIAMMAN KOIL ST,
UTHANDI,
CHENNAI- 600119.

prabakaran_j@yahoo.co.in
9841757884

23-12-2025

STRUCTURAL STABILITY CERTIFICATE

The detailed engineering and structure design of the proposed building comprising of GROUP HOUSING DEVELOPMENT WITH 2 BLOCKS; BLOCK A- STILT FLOOR + 5 FLOORS (18.30M HEIGHT) RESIDENTIAL BUILDING WITH 55 DWELLING UNITS, BLOCK B- GROUND FLOOR(GYM & ASSOCIATION ROOM) +2 FLOORS(9.0M HEIGHT) RESIDENTIAL BUILDING WITH 4 DWELLING UNITS TOTALLY 59 DWELLING UNITS , COMPRISED IN S.NO.131/16, 131/11A, 138/1A1A2 ,138/1A1B1, 138/1A1B2 & OF Door No.5/1025, Rajiv Gandhi Salai, (Old Mahabalipuram Road), Palavakkam Village, Sholinganallur Taluk, Chennai District , has been done by me/us based on the report of geotechnical investigation (soil test) done by Mars synergy Geotech Pvt ltd Report No. MSGTPL/SI-5746-R1/22-23 Dated 23 December 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/We 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 875 and design of earthquake resistant structure as per IS 1893.

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

Yours faithfully

J. Prabakaran

J. PRABAKARAN, M.E.,
Structural Engineer
CMDA REG. No: SE/GR-I/2025/4/0009
GCC REG No : RSE 101182020
No:1/4, Pidariamman Kovil Street,
Uthandi, Chennai - 600 119.
Mobile : 9841757884

Encl.: Structural Design Calculation

CHENNAI METROPOLITAN DEVELOPMENT AUTHORITY
Thalamuthu Natarajan Building, No.1, Gandhi Irwin Road, Egmore,
Chennai - 600 008
Phone : 28414855 Fax: 91-044-28548416
E-mail: mscmda@tn.gov.in
Web site: www.cmdachennai.gov.in.

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that the Thiru / Tmt. / M/s. **PRABAKARAN** has enrolled as **Registered Structural Engineer Grade-I(SE)** with Chennai Metropolitan Development Authority (CMDA) who has the qualification of **M.E Structures** and experience in the relevant field for **11** years.

He/She has been given the Registration No. **SE/I/2025/4/0009** on **01-Apr-2025** He/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 **31-Mar-2030**.

Signature valid
Name M.K. Asha Parveen
Designation Superintendent
Date :04/04/2025 3:44:29 PM



M.K. Asha Parveen

Superintendent

J. Prabakaran

J. PRABAKARAN, M.E.,
Structural Engineer
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GCC REG No : RSE 101182020
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PLAN SHOWING THE PROPOSED CONSTRUCTION OF GROUP HOUSING DEVELOPMENT WITH 2 BLOCKS; BLOCK A- STILT FLOOR + 5 FLOORS (18.30M HEIGHT) RESIDENTIAL BUILDING WITH 55 DWELLING UNITS, BLOCK B- GROUND FLOOR(GYM & ASSOCIATION ROOM) +2 FLOORS(9.0M HEIGHT) RESIDENTIAL BUILDING WITH 4 DWELLING UNITS TOTALLY 59 DWELLING UNITS AT RAJIV GANDHI SALAI (OMR) AND ESTATE 2ND MAIN ROAD, PALLAVAKKAM, CHENNAI COMPRISED IN S.NO.131/11A, 131/16, 138/1A1B1, 138/1A1B2 & 138/1A1A2 OF PALAVAKKAM VILLAGE WITHIN THE LIMIT OF GREATER CHENNAI CORPORATION. ZONE: XIV DIV: 117

TYPICAL STRUCTURAL DESIGN CALCULATION

1 **General:**

Proposed residential buildings are two blocks. one block Stilt + 5 upper floors & another block G+2 . stilt floor is used as car parking purpose. Upper floors are for Residential use. One typical block design is given

2 **Design Basis:**

Latest Design codes of BIS-456, 875 and 1893 are followed with SP-16 Design Aid book. A typical 2-D Frame was taken for analysis to arrive at the bending moment for column design. Since the building is 6 stories, wind force is taken into account. Also a live load reduction factor of 0.2 is taken for foundation and column design.

Pile foundation is proposed as per as per soil report.

Fe- 500 steel is used as main steel and minimum M25 concrete is provided

3 **Earthquake consideration:**

For better stability during earhquake, the columns are braced in both direction with beams. Continuous lintels are specified for outer walls and column ties are closely spaced for better ductility. For building on basement and stilt, minimum size is taken as 300 mm(12")

J. Prabakaran.

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EARTHQUAKE LOAD

Design horizontal Seismic coeff. Ag = $\frac{Z}{2} \times \frac{I}{R} \times \frac{Sa}{g}$

Z = Zone Factor = 0.16 for Chennai

I = Importance Factor = 1.0

R = Response reduction Factor = 5

$\frac{Sa}{g}$ = Avg. response acc.coeff. Depends on Ta

Ta = Fundamental natural period

= $\frac{0.09\ h}{\sqrt{d}}$ for infill walls

h = height of the building

d = Width of the building

= 0.075 h for office building

W = seismic weight of building

= 100% D.L + 25% L.L for residential <=300

= 100% D.L + 50% L.L for residential >300

Base Seismic Shear Vb = Ag x W

WIND LOAD

Vz = Vb x K1 x K2 x k3

Vb = 50 m/sec in Chennai

K1 = Probability Factor = 1

K2 = Terrain, Height Factor = 1

K3 = Topography Factor = 1

p = 0.6 x Vz x Vz

= 0.6 x 50 x 50

= 1500 N/Sq.m

150 Kg/Sq.m

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5 **Design Loads:**

Slab130 mm thk avg	=	3.3	KN/sq.m
Live load	=	2.0	KN/sq.m
Finishes	=	1.7	KN/sq.m
		7.0	KN/sq.m

Say 7.0 KN/sq.m/floor for slab and beam design

Applying live load reduction of = 0.2 ,

For column and foundation design, 5.6 Kn/sqm is taken.

This value is also taken for frame analysis

200 thick AAC blocks for exterior walls

0.2 x 2.55 x 8 = 4 KN/m/floor

B.W. 100 thk for interior panels

0.100 X 2.55 x 8 = 2.04 KN/m/floor

Beams 0.2 x 0.35 x 25 .= 1.75 KN/m/floor

Columns 0.3 x 0.45 x 3.00 x 25 .= 10.1 KN/floor

These are taken for analysis with WL+LL+DL combination.

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6 **SLAB DESIGN:**

Thickness	=	130 mm	Fck	= M 30	N/sq.mm
Cover	=	20 mm	Fy	=Fe 415	N/sq.mm
Eff.Depth	=	105 mm			

Panel (3.4 x 4.9) m

Twoway slab Ly / Lx = 4.9 / 3.4 .= 1.4

Support condition - 1 sides discontinuous

short span=	α x	= 0.070	(- BM at continuous edge)	Table:26
		= 0.049	(+ BM at midspan)	in IS-456-2000
Long span	α y	= 0.055	(- BM at support)	
		0.042	+BM AT MIDSPAN	

Designed for 0.070 co.efficient

Mu .= 0.070 x 7.0 1.5 x 3.4 x 3.4 = 8.50 KNm/m

$$\text{Mu / b.d.d} = \frac{8.50 \times 1000 \times \mathbf{1000}}{1000 \times 105 \times 105} = 0.77 \text{ N/sq.mm}$$

From Table-3of SP-16, Pt 0.200 %

Minimum Pt = 0.12 % as per code, for Fe-415

At = 0.200 x 1000 105 ./ 100 = **210** sq.mm/m

Provide 10 dia @ 175 = **448.8** sq.mm/m Short span

Provide 8 dia @ 175 = **287.2** sq.mm/m Long span

J. Prabakaran.

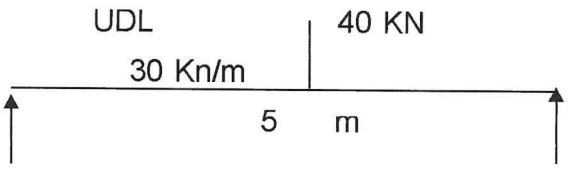
J. PRABAKARAN, M.E.,
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8 **Beam design:** Beam-1

span = 5 m Beam size 200 x 450

d = 410 mm

Fck = M 30



Bending moment for UDL 98.00 Kn.m

Max. B.M = 98.00 (top of support) This is taken for design

Mu = 98 x 1.5 x 10-e6 = **147.0** x **10-e6 =** Nmm

$$Mu/b.d.d = \frac{147.0 \times 10\text{-}e6}{200 \times 410 \times 410} = 4.37 \text{ N/sq.mm}$$

From table-53 SP-16 for d'/d = 40 / 450 = 0.00

Pt = **1.000** % Pc = **0.30** %

At = 1.000 x 200 x 410 / 100 = **820** sq.mm (top)

Ac = 0.300 x 200 x 410 / 100 = **246** sq.mm (bot)

provided 3 No 20 = **942** sq.mm +

2 No 12 = **226**

1169 sq.mm at support top

Shear Design:

Shear force p/2 = 95 KN

Factored shear force = 1.5 x 95 = 143 KN

for 1.00 % steel Shear resisted by concrete section

from table-61 0.65 x 200 x 410 / 1000 = 53 KN

Balance shear (Vus) = 143 - 53 = 89 KN

Vus/d = 89 / 41 = 2.18 KN/cm

from table 62 of SP-16

Required 2 legged 8 stirrups @ 150 mm c/c

Provided 2 legged **8** stirrups @ **110** mm c/c

J - Prabakaran.

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Mobile : 9841757884

9 **COLUMN DESIGN:** **COL-A** **COL SIZE** **300** **X** **600**

Maximum load is with wind force P = 160 t

Pu = 1.5 x 160 x10 = **2400** KN

Max.Bending Moment = 3 t.m Mu = 1.5 x 3.0 x10= 45 Kn.m

Cover = 40 mm

d'/d = 0.07

Fck = 35 N/sq.mm

Provide bars equaly all sides

Refer chart 44 of SP-16

$$\frac{Pu}{Fck\ b\ d} = \frac{2400 \times 1000}{35 \times 300 \times 600} = 0.38$$

$$\frac{Mu}{Fck\ b\ d^2} = \frac{45 \times 10^6}{35 \times 300 \times 600} = 0.01$$

$$\frac{p}{Fck} = \frac{0.04}{p\% = 0.05 \times 35} \quad 1.75\ \%$$

Minimum %age of steel is 0.8 %

$$As = \frac{1.75 \times 300 \times 600}{100} = 3150\ \text{sq.mm}$$

Provided 6 Nos 20 dia = **1885** sq.mm

\+ 4 Nos 25 dia = **1964** sq.mm

3848 SQ MM

Ties 8 @ 125 & 175c/c

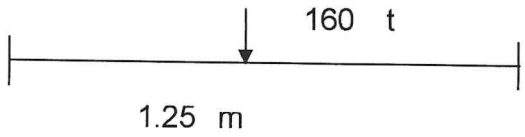
J. Prabakaran

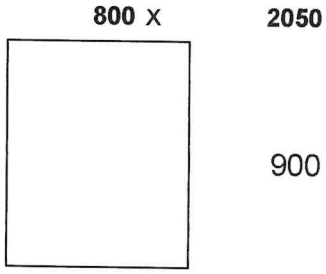
J. PRABAKARAN, M.E.,
Structural Engineer
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10 **Pile cap and pile**

As per soil report, 15.0 m bored cast-in-situ pile can be adopted.

500 dia pile safe capacity	=	100	t	
Col-A carries maximum load of	=	160	t	
So No of piles provided	=	2	Nos	
Pile cap size	=	800 x 2050 X	800	MM
M-30 grade	=	25	N/sq.mm	





Section of pile cap

Pile to pile distance = 1.25 m

axial force = 160 x 1.25 / / 0.82

= 61 tonnes

At reqd = 60.98 /2 '= 30 sqcm

Provided bttom bothways = **11 nos** 20

= 34.6 sqcm

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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.