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RE REGULATORY RECORD

RERA Document

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DIGITALLY VERIFIED RECORD

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9841757884

07-03-2026

STRUCTURAL STABILITY CERTIFICATE

The detailed engineering and structure design of The proposed construction of stilt floor + 3 floors with 12.30m height residential building with 14 dwelling units for block. no 1, T.S. No 78, Periyar Pathai road, Choolaimedu, Puliyur town, Egmore taluk, Chennai-600094..has been done by me based on the report of geotechnical investigation (soil test) done by NAGADI CONSULTANTS PRIVATE LIMITED. Report No. G(C)9997 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 IS875 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.

ENCL: Structural Design Calculations

J. Prabakaran

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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 :04/01/2025 3:44:29 PM



M K Asha Parveen

Superintendent

J. Prabakaran

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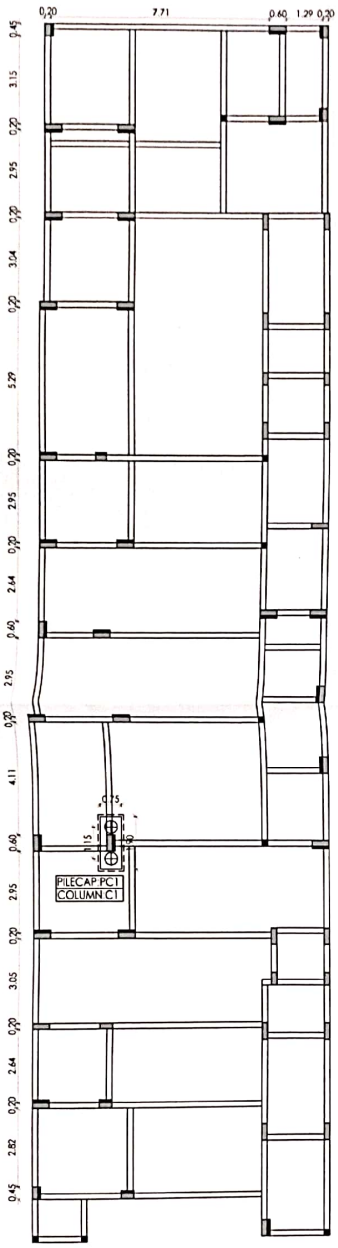
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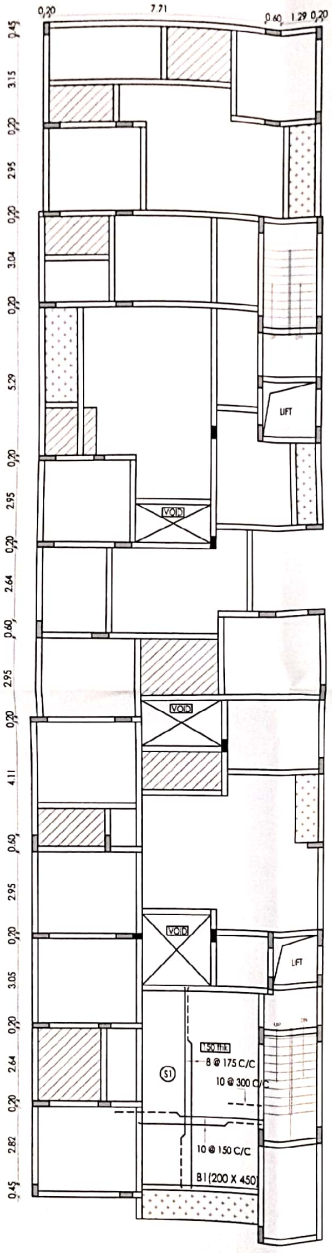
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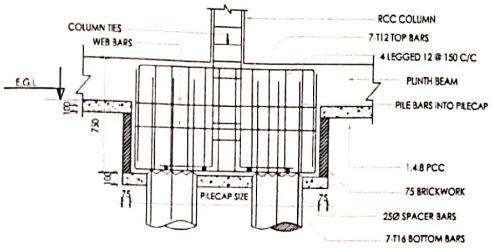
SUBMISSION DRAWING



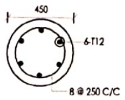
FOUNDATION & PLINTH BEAM LAYOUT



1st FLOOR ROOF LAYOUT

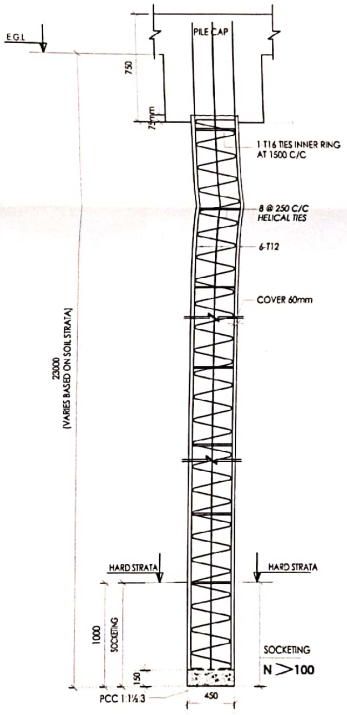


DETAIL OF PC-1



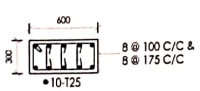
SECTION OF PILE

SAFE CAPACITY : 70 Tonnes



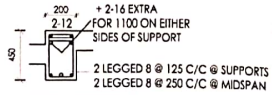
*CONCRETE GRADE M-30 WITH 400 Kg/cu.m POZZALONA OR SLAG CEMENT

TYPICAL CROSS SECTION OF BORED CAST INSITU PILE



C1 COLUMN DETAILS

M35 CONCRETE GRADE



B1 BEAM DETAILS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ARCHITECTURAL DRAWING
3. ANY DISCREPANCY/DOUBT WHILE EXECUTING SHOULD BE BROUGHT TO NOTICE OF THE STRUCTURAL CONSULTANT
4. DO NOT SCALE THE DRAWING. FOLLOW SPECIFIED DIMENSIONS
5. CONDUIT PIPES SHOULD NOT GO THROUGH COLUMNS BOTH IN TRANSVERSE OR LONGITUDINAL DIRECTIONS
6. STEEL REINFORCEMENT SHOULD BE Fe500
7. CONCRETE GRADE SHOULD BE AS SPECIFIED

MEMBER	CONCRETE GRADE	COVER
PILE	M-30	60mm
PILECAP	M-30	50mm
COLUMN	M-35	40mm
ROOF BEAM	M-30	30mm
ROOF SLAB	M-30	25mm

ABBREVIATION	DESCRIPTION
E.G.L	EXISTING/NATURAL GROUND LEVEL
F.G.L	FORMED GROUND LEVEL
S.F.L	STILT FLOOR LEVEL
G.F.L	GROUND FLOOR LEVEL
F.C	*FLOATING COLUMN*
Thk	*THICKNESS*
C/C	CENTRE TO CENTRE
Lvl.	LEVEL
T.O.B	TOP OF BEAM
B.O.B	BOTTOM OF BEAM
T.O.S	TOP OF SLAB
B.O.S	BOTTOM OF SLAB
St	STRAIGHT/THROUGH
Ct	CURTAIL

A. FOUNDATION DESIGNED FOR STILT + 3 UPPER FLOORS

B. PILE FOUNDATION IS PROVIDED AS PER SOIL REPORT

STRUCTURAL REFERENCE DRAWINGS.

PROJECT TITLE:

PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR + 3 FLOORS WITH 12.30m HEIGHT RESIDENTIAL BUILDING WITH 14 DWELLING UNITS FOR BLOCK NO 1, T.S. NO 78, PERIYAR PATHAI ROAD, CHOOLAIMEDU, PULIYUR TOWN, EGMORE TALUK, CHENNAI-600094.

DRAWING TITLE:

FOUNDATION LAYOUT & ROOF LAYOUT WITH DETAILS

ISSUE: SUBMISSION DRAWING

DRAWING No: SNE RMS-APLT COR-001 R0			
SCALE	1:100	SHEET SIZE	A2
DRAWN	M.H	DESIGN	Y.N
NORTH POINT		CHECKED	
		SHEET No	01
		DATE	17.05.25
		REVISION	R1

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Scanned with OKEN Scanner

PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR + 3 FLOORS WITH 12.30m HEIGHT RESIDENTIAL BUILDING WITH 14 DWELLING UNITS FOR BLOCK. NO 1, T.S. NO 78, PERIYAR PATHAI ROAD, CHOOLAIMEDU, PULIYUR TOWN, EGMORE TALUK, CHENNAI-600094.

TYPICAL STRUCTURAL DESIGN CALCULATION

1 **General:**

Proposed buildings are **S+3** floors. Stilt floor is used for car parking. Upper floors are for residential purpose.

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 4 stories, wind force is not taken into account. Also a live load reduction factor of 0.1 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

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 stilt, minimum size is taken as 300 mm(12")

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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

= 0.09x18/ sqrt 23.7

= 0.33

= $0.075\ h^{0.75}$ 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

4

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:**

Slab 150mm thk	=	3.75	KN/sq.m
Live load	=	2.00	KN/sq.m
Finishes	=	1.50	KN/sq.m
		7.25	KN/sq.m

Say 7KN/sq.m/floor for slab and beam design
Applying live load reduction of = 0.1 ,
For column and foundation design, 6.85 Kn/sqm is taken.
This value is also taken for frame analysis

Blockwork 200 thick for exterior walls

0.2 x 2.4 x 20 = 10 KN/m/floor

Blockwork 100 thick for interior walls

0.100 X 2.4 x 20 = 4.8 KN/m/floor

Beam 0.2 x 0.60 x 25 .= 3.00 KN/m/floor

Columns 0.3 x 0.60 x 3.00 x 25 .= 13.5 KN/floor

for 4 upper 4 X 13.5 KN/floo .= 54 KN

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

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6 **SLAB DESIGN:** Refer sheet-1 SLAB - S1

Thickness	=	150 mm		Fck	= M 25	N/sq.mm
Cover	=	25 mm		Fy	=Fe 500	N/sq.mm
Eff.Depth	=	120 mm				

Panel (4.4 X 7.2) m

Twoway slab Ly / Lx = 7.2 / 4.4 .= 1.64

Support condition - One long edge continuous

short span= α x = 0.067 (- BM at continuous edge) Table:26

= 0.088 (+ BM at midspan) in IS-456-2000

short span= α y = 0.043 (+ BM at midspan)

= 0.000 (- BM at continuous edge)

Designed for 0.088 co.efficient

Mu .= 0.088 x 8.0 1.5 x 4.4 x 4.4 = 20.44 KNm/m

$$\text{Mu / b.d.d} = \frac{20.44 \times 1000 \times 1000}{1000 \times 120 \times 120} = 1.42 \text{ N/sq.mm}$$

From Table-2 of SP-16, Pt 0.350 %

Minimum Pt = 0.12 % as per code, for Fe-500

At = 0.350 x 1000 120 ./ 100 = **420** sq.mm/m

Provide 10 dia @ 150 = **524** sq.mm/m Short span

Provide 8 dia @ 175 = **287** sq.mm/m Long span

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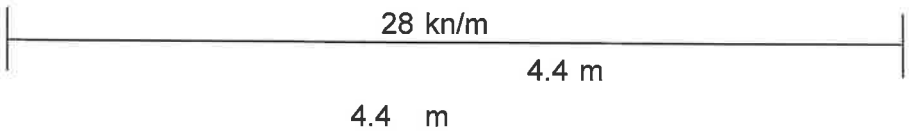
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7 **Beam design:** Beam-1 (Refer sheet -01)

span = 4.4 m Beam size 200 x 450

d = 410 mm

Fck = M 25



4.4 m

Bending moment for UDL load = 68.00 Kn.m

Max. B.M = 68.0 Knm (top of support)

This is taken for design

Mu = 68.0 x 1.5 x 10-e6

102.0 x **10-e6** Nmm

$$Mu/b.d.d = \frac{102.0 \times 10\text{-e6}}{200 \times 410 \times 410} = 3.03 \text{ N/sq.mm}$$

From table-2 SP-16 for d'/d = 40 / 450 = 0.09

Pt = **0.740** % Pc = **0.250** %

At = 0.740 x 200 x 410 / 100 = **607** sq.mm (Bot)

Ac = 0.250 x 200 x 410 / 100 = **205** sq.mm (Top)

provided 2 No 12 = **226** sq.mm +

2 No 16 = **402**

628 sq.mm

No of bars at top of support = **2 Nos** **12** dia + **2 Nos** **16** dia

%age of steel at top of support = 0.8 %

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Shear Design:

Shear force 92 KN

Factored shear force = 1.5 x 92 = 138 KN

for	0.59 %	steel		Shear resisted by concrete section					
from table-61	0.72	x	200	x	410 /	1000 =	59 KN		
Balance shear	(Vus) =		138	-	59	=	79 KN		

Vus/d = 79 / 41 = 1.93 KN/cm

from table 62 of SP-16

Required 2 legged	8 stirrups	@	200 mm	c/c
Provided 2 legged	**8** stirrups	@	**125** mm	c/c

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8 **COLUMN DESIGN:** **COL-C1** **COL SIZE** **600 X 300**

Maximum load is with wind force — P = 120 t

Pu = 1.5 x 120 x10 = 1800 KN

Max.Bending Moment = 12 t.m — Mu = 1.5 x 12.0 x10= 180 Kn.m

Cover = 40 mm

d'/d = 0.07

Fck = **M35** = 35 N/sq.mm

Provide bars equaly all sides

Refer chart 44 of SP-16

$$\frac{Pu}{Fck\ b\ d} = \frac{1800 \times 1000}{35 \times 600 \times 260} = 0.29$$

$$\frac{Mu}{Fck\ b\ d^2} = \frac{180 \times 10^6}{35 \times 600 \times 260} = 0.13$$

$$\frac{p}{Fck} = 0.07 \qquad p\% = 0.07 \times 35 \times 260 \quad 2.45\ \%$$

Minimum %age of steel is 0.8 %

$$As = \frac{2.45 \times 600 \times 300}{100} = 4410\ sq.mm$$

Provided	10	Nos	25 dia	+	=	4909 sq.mr +
	0	Nos	0 dia		=	0 sq.mm
		TOTAL PROVIDED			=	4909 sq.mm

Ties 8 @ 100 c/c & 8 @ 175 c/c

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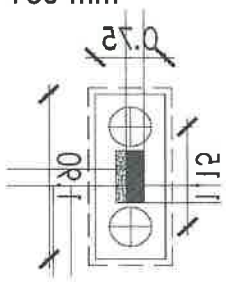
9 **Pile cap and pile**

As per soil report, 23 m bored cast-in-situ pile can be adopted.

450 dia pile safe capacity	=	70	t	
Col-A carries maximum load of (P)	=	120	t	
So No of piles provided	=	2	Nos	
Pile cap size	=	750 x 1900 X	750	mm
M-30 grade	=	30	N/sq.mm	
Pile to pile distance(L)	=	1.15	m	

$$\text{Moment} = \frac{W \times L}{6}$$

= 230 kN-m



Pile Cap in plan

D = 0.75 m

d = 0.69 m

Mu/Bd^2	=	1.01
pt %	=	0.255

Provided bottom = **7-16mm**

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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

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