Verified RealEstate™

RE REGULATORY RECORD

RERA Document

The document as the regulator published it, reproduced in full behind this page.

Published for reference. The authority's own register is the operative record.

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

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

DIGITALLY VERIFIED RECORD

PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR + 3 FLOORS (HEIGHT 12.30M) RESIDENTIAL BUILDING WITH 15 DWELLING UNITS AVAILING PREMIUM FSI AT NEW DOOR NO.28, DR.SOUNDARAMMAL STREET, LAKSHMIPURAM, CHROMPET, CHENNAI- 44, COMPRISED IN S.NO.314/17B OF THIRUNEERMALAI VILLAGE WITHIN THE LIMIT OF TAMBARAM MUNICIPAL CORPORATION

TYPICAL STRUCTURAL DESIGN CALCULATION

1 **General:**

Proposed building is S+ 3 upper floors for residential purpose. Stilt floor is used for car parking. The floor height is 3.0 m in upper floors

2 **Design Basis:**

Latest Design codes of BIS-456, 875 and 1893 are followed with SP-16 Design Aid book. A typical Frame was taken for analysis to arrive at the bending moment for column design. Since the building is 4 stories, wind force is taken into account. Live load reduction factor is applied in design. isolated foundation is proposed. Fe-500 steel is used as main steel and M25 grade concrete.

3 **Earthquake consideration:**

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

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

P.R.JEYAPRAKASH, B.E.,M.I.E
Structural Engineer
Reg. No. SE/GR-II/19/04/042
BBCL Ashraya Block-C, Flat-2C,
Pillayar Koil Street, Thuraipakkam,
Chennai - 600 097.

SCAN AnyScanner

5 **Design Loads:**

Slab thk	130	=	3.25 KN/sq.m
Live load		=	2.00 KN/sq.m
Finishes		=	1.25 KN/sq.m
			6.50 KN/sq.m

Say 6.50 KN/sq.m/floor for slab and beam design
Applying live load reduction of = 0.25 ,
For column and foundation design, 6.00 Kn/sqm is taken.

This value is also taken for frame analysis

Brick work 230 thick for exterior walls

	0.23	x	2.4	x	20		=	11 KN/m/floor
Beams	0.23	x	0.60	x	25		.=	3.5 KN/m/floor
Columns	0.3	x	0.60	x	2.40	x 25	.=	10.8 KN/floor

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

P.R.JEYAPRAKASH, B.E.,M.I.E
Structural Engineer
Reg. No. SE/GR-II/19/04/042
BBCL Ashraya Block-C, Flat-2C,
Pillayar Koil Street, Thuraipakkam,
Chennai - 600 097.

SCAN AnyScanner

6 **SLAB DESIGN:**

Thickness	=	130 mm	Concrete mix	Fck	= M	25	N/sq.mm
Cover	=	20 mm	Steel Grade	Fy	=Fe	500	N/sq.mm
Eff.Depth	=	105 mm					

Panel (3.35 x 6.9) m

=

One way slab Ly / Lx 6.9 / 3.4 .= 2.1

Support condition - One long edge discontinuous

short span=	α x	=	0.000	(- BM at continuous edge)	Table:26
		=	0.120	(+ BM at midspan)	in IS-456-2000
long span=	α y	=	0.000	(+ BM at continuous edge)	
		=	0.025	(+ BM at midspan)	

Designed for 0.120 co.efficient

Mu .= 0.120 x 6.5 x 1.5 x 3.4 x 3.35 = 13.13 knm/m

$$\text{Mu / b.d.d} = \frac{13.13 \times 1000 \times 1000}{1000 \times 105 \times 105} = 1.19 \text{ N/sq.mm}$$

From Table-3 of SP-16, Pt .= 0.290 %

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

At = 0.290 x 1000 x 105 ./ 100 = **305** sq.mm/m

Provide 8 dia @ 130 c/c = **387** sq.mm/m Short span

Provide 8 dia @ 230 c/c = **219** sq.mm/m Long span

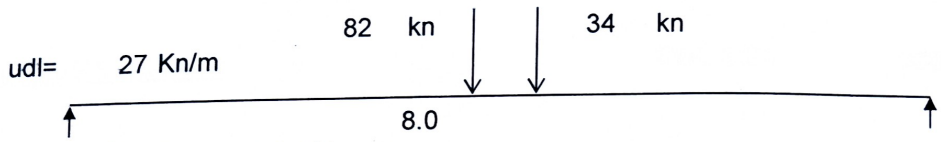
P.R.JEYAPRAKASH, B.E.,M.I.E
Structural Engineer
Reg. No. SE/GR-II/19/04/042
BBCL Ashraya Block-C, Flat-2C,
Pillayar Koil Street, Thuraipakkam,
Chennai - 600 097.

SCAN AnyScanner

7 **Beam design:**

Effective span = 8.0 m Beam size 230 x 600

Fck = M 25 d = 560 mm



Max. Bending Moment at mid span

udl = w.l.l / 12 + pl/8 + pl/8

$$= \frac{26 \times 8.00 \times 8.00}{12} + \frac{82 \times 8.0}{8} + \frac{34 \times 8.0}{8}$$

= 255 Knm

Mu = 255 x 1.5 x 10-e6 = 382.0 x 10-e6 Nmm

$$Mu/b.d.d = \frac{382 \times 10\text{-e6}}{230 \times 560 \times 560} = 5.30 \text{ N/sq.mm}$$

From table-55 SP-16 d'/d = 40 / 560 = 0.07

Pt = **1.449** % for Pc = **0.548** %

At = 1.449 x 230 x 560 / 100 = **1866** sq.mm (bot)

Ac = 0.548 x 230 x 560 / 100 = **706** sq.mm (top)

provided 3 No 25 = 1473 sq.mm

\+ 2 No 25 = 982 sq.mm

2454 sqmm bot

provided 2 No 25 = 982 sq.mm

\+ 3 No 25 = 1473 sq.mm

2454 sqmm top of support

Shear Design:

$$\text{Shear force} = \frac{26 \times 8}{2} + \frac{82}{2} + \frac{34}{2} = 162 \text{ KN}$$

Factored shear force = 1.5 x 162 = 243 KN

for 1.45 % steel Shear resisted by concrete section

from table-61 0.73 x 230 x 560 / 1000 = 94 KN

Balance shear (Vus) = 243 - 94 = 149 KN

Vus/d = 149 / 41 = 3.6 KN/cm

from table 62 of SP-16

Required 2 legged 10 stirrups @ 155 mm c/c

Provided 2 legged **10** stirrups @ **130** mm c/c

P.R.JEYAPRAKASH, B.E.,M.I.E
Structural Engineer
Reg. No. SE/GR-II/19/04/042
BBCL Ashraya Block-C, Flat-2C,
Pillayar Koil Street, Thuraipakkam,
Chennai - 600 097.

SCAN AnyScanner

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

Maximum load on column in basement P = 140 t

Pu = 1.5 x 140 x10 = 2100 KN

Max.Bending Moment = 8 t.m Mu = 1.5 x 8.0 x10= 120 Kn.m

Cover = 40 mm

d'/d = 0.07

Fck = M 35 = 35 N/sq.mm Fy = Fe500

Provide bars equaly all sides

Refer chart 48 of SP-16

$$\frac{Pu}{Fck\ b\ d} = \frac{2100 \times 1000}{35 \times 300 \times 600} = 0.33$$

$$\frac{Mu}{Fck\ b\ d^2} = \frac{120 \times 10^6}{35 \times 300 \times 600 \times 600} = 0.03$$

$$\frac{p}{Fck} = 0.03 \quad p\% = 0.03 \times 35 = 1.05\ \%$$

Minimum steel = 0.8 %

$$As = \frac{1.05 \times 300 \times 600}{100} = 1890\ sq.mm$$

Provided	4	Nos	25 dia =	1964 sq.mm
+	4	Nos	20 dia=	1257 sq.mm
				3220 sq.mm

Ties 8 @ 110c/c and 8 @ 190c/c

P.R.JEYAPRAKASH, B.E.,M.I.E
Structural Engineer
Reg. No. SE/GR-II/19/04/042
BBCL Ashraya Block-C, Flat-2C,
Pillayar Koil Street, Thuraipakkam,
Chennai - 600 097.

SCAN AnyScanner

9 **FOOTING DESIGN**

Maximum load on column P = 140 t Fck = M25
Add 10% footing load = 154 t
Max.Bending Moment = 8 t.m

S.B.C of Soil at 24 t/sqm at depth = 2 m
Assume footing base of 2.8 X 2.8 m and depth = 750 mm
So pressure on soil is Eff. Depth = 700 mm

$$\frac{154}{2.65 \times 2.65} = 21.93 \text{ t/sqm} < 24 \text{ t/sqm}$$

Cantilever projection of footing = $\frac{2.65 - 0.90}{2} = 0.88$ m

B.M on footing at face of column pedestal

BM = $\frac{21.93 \times 0.88 \times 0.88}{2} = 8.39$ tm

Mu = 8.39 x 1.5= 12.59 tm

Mu/b.d.d = $\frac{12.59}{1000} \times \frac{1000}{700} \times \frac{10000}{700} = 0.26$ N/sqm

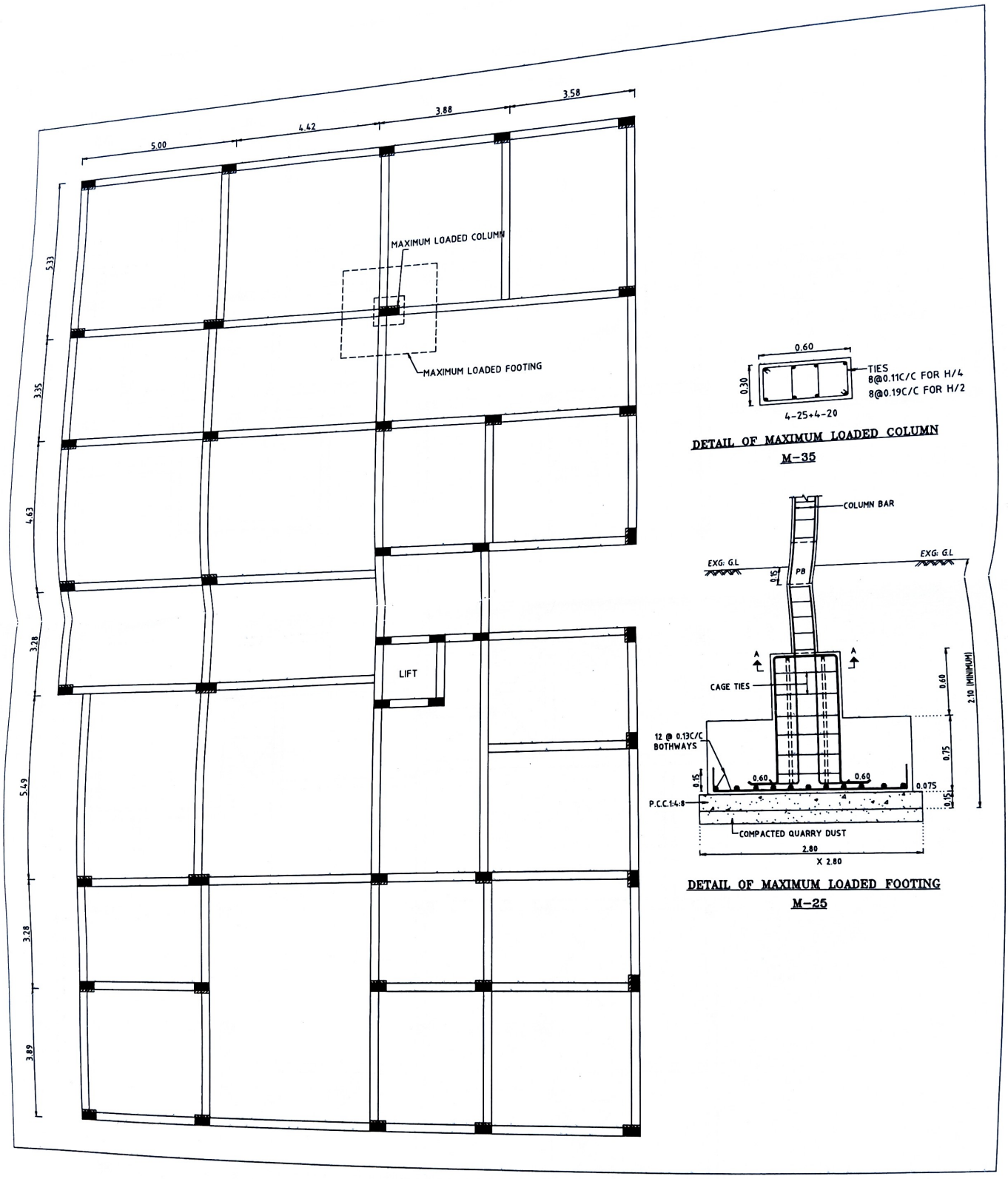
Fck = 25 n/sqmm
From Table-3 of SP-16, Pt 0.07 % min pt% .= 0.120 %

At = $\frac{0.120 \times 1000 \times 700}{100}$ = **840** sq.mm

Provide 12 dia @ 130 c/c = **2366** sq.mm

P.R.JEYAPRAKASH, B.E.,M.I.E
Structural Engineer
Reg. No. SE/GR-II/19/04/042
BBCL Ashraya Block-C, Flat-2C,
Pillayar Koil Street, Thuraipakkam,
Chennai - 600 097.

SCAN AnyScanner



DETAIL OF MAXIMUM LOADED COLUMN

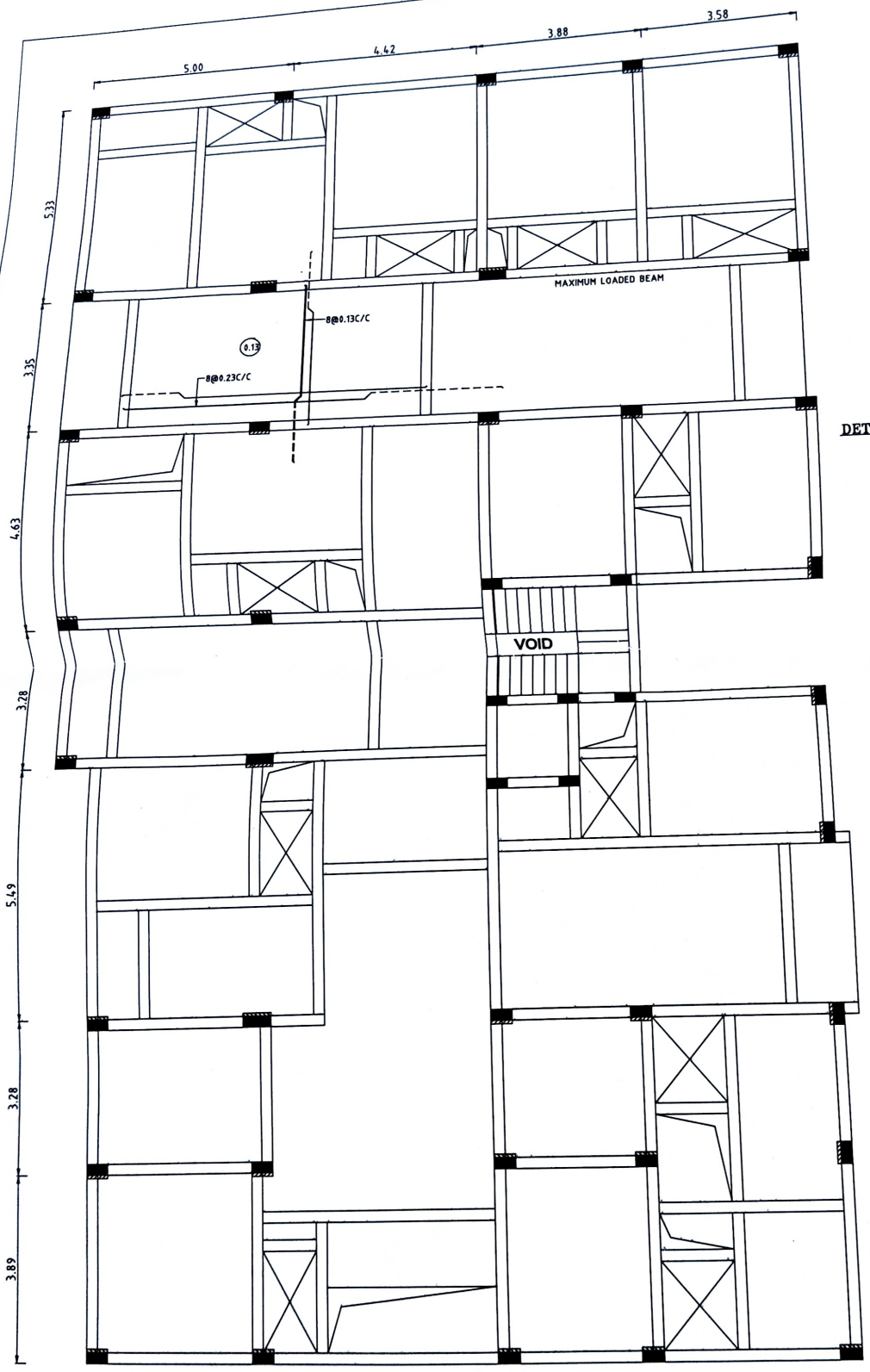
M-35

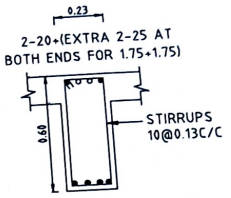
DETAIL OF MAXIMUM LOADED FOOTING

M-25

P.R.JEYAPRAKASH, B.E.,M.I.E
Structural Engineer
Reg. No. SE/GR-II/19/04/042
BBCL Ashraya Block-C, Flat-2C,
Pillayar Koil Street, Thuraipakkam,
Chennai - 600 097.

SCAN AnyScanner





DETAIL OF MAXIMUM LOADED BEAM
M-25

P.R.JEYAPRAKASH, B.E.,M.I.E
Structural Engineer
Reg. No. SE/GR-II/19/04/042
BBCL Ashraya Block-C, Flat-2C,
Pillayar Koil Street, Thuraipakkam,
Chennai - 600 097.

SCAN AnyScanner

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

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.