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RE REGULATORY RECORD

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DIGITALLY VERIFIED RECORD

# BLUMOON PROPERTIES.

DESIGN CALCULATION

FOR

# RESIDENTIAL BUILDING

HEIGHT (18.25M) 10 DWELLING UNITS IN STILT + 5 FLOORS AVAILLING PRIMIUM FSI AT REGULARISED PLOT

AT OLD DOOR NO 9 PART, NEW DOOR NO. 11 PART, ASHTALAKSHMI NAGAR, 19TH STREET, ALAPAKKAM, CHENNAI, COMPRISED IN OLD S NO. 341/1D1 PART AND NEW S NO. 341/1D1B OF MADURAVOYAL VILLAGE, MADURAVOYAL TALUK WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION

M. PUNITHAN B.Sc.,M.I.E.
Registered Structural Engineer Grade-II
CMDA Reg. No. SE/GR-II/19/04/044
Renewed 10-04-2024. Valid upto 09-04-2029
52/141, Flat C2, PJM Apartments, East Vanniar Street,
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ARCHITECTS:
M/S MADRAS DESIGN WORKS

CHENNAI

ENGINEERS:
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**RESIDENTIAL FLATS**

**COLUMN A7**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of floors | = | 1 | + | 5 | = | 6 | | | | | | |
| Foundation depth | = | 2 | m | | | | | | | | | |
| Ground to floor level | = | 1 | m | | | | | | | | | |
| GFloor to floor height | = | 3.00 | m | | | | | | | | | |
| FFloor to floor height | = | 3.00 | m | | | | | | | | | |
| Thickness of slab assumed | = | 0.115 | m | | | | | | | | | |
| Slab loading t/ sqm | = | 0.598 | t | | | | | | | | | |
| Breadth of beams | = | 0.23 | m | | | | | | | | | |
| Depth of beams assumed | = | 0.374 | m | | | | | | | | | |
| Parapet wall height | = | 1 | m | | | | | | | | | |
| Plinth beams assumed | = | 0.187 | m | | | | | | | | | |
| Total height of wall | = | 17.07 | m | | | | | | | | | |
| Total height of column | = | 22 | m | | | | | | | | | |
| Size of column | = | 0.45 | x | 0.3 | m | | | | | | | |

**Total load:**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Due to slab | = | 6 | x | 1.75 | x | 1.99 | x | 0.598 | | | = | 12.48 | t |
| Wall | = | 0.8 | x | 0.2 | x | 3.74 | x | 17.07 | | | = | 10.21 | t |
| Roof beams | = | 2.5 | x | 0.2 | x | 0.259 | x | 0.187 | x | 6 | = | 0.145 | t |
| Plinth beam | = | 2.5 | x | 0.2 | x | 0.187 | x | 0.187 | x | 1 | = | 0.017 | t |
| Self wt | = | 2.5 | x | 0.45 | x | 0.3 | x | 22 | | | = | 7.425 | t |
| | | | | | | | | | | | | 30.28 | t |
| | | | | | | Total | | | | | = | **30.28** | **t** |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Using size of column to be** | = | **450** | **X** | **300** | **mm** | | | | | | |
| **With 6/16 Rods, Ast** | = | 6 | x | 201 | + | 3 | x | 113 | = | 1545 | sqmm |
| Capacity of column | = | 450 | x | 300 | x | 6 | + | 1545 | x | 190 | |
| | = | **110.4 t** | | > | | **45 t** | | | | | |
| Minimum Reinforcement | = | 0.008 | x | 45 | x | 30 | = | 10.8 | sqcm | < | 15.45 sqcm |
| % of Reinforcement | = | 1545 | / | 45 | x | 30 | = | 1.144 | < | 4 | |

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**COLUMN C1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of floors | = | 1 | + | 5 | = | 6 | | | | | | |
| Foundation depth | = | 2 | m | | | | | | | | | |
| Ground to floor level | = | 1 | m | | | | | | | | | |
| GFloor to floor height | = | 3.00 | m | | | | | | | | | |
| FFloor to floor height | = | 3.00 | m | | | | | | | | | |
| Thickness of slab assumed | = | 0.115 | m | | | | | | | | | |
| Slab loading t/ sqm | = | 0.598 | t | | | | | | | | | |
| Breadth of beams | = | 0.23 | m | | | | | | | | | |
| Depth of beams assumed | = | 0.331 | m | | | | | | | | | |
| Parapet wall height | = | 1 | m | | | | | | | | | |
| Plinth beams assumed | = | 0.331 | m | | | | | | | | | |
| Total height of wall | = | 17.32 | m | | | | | | | | | |
| Total height of column | = | 22 | m | | | | | | | | | |
| Size of column | = | 0.45 | x | 0.3 | m | | | | | | | |

**Total load:**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Due to slab | = | 6 | x | 1.75 | x | 4.875 | x | 0.598 | | | = | 30.58 | t | |
| Wall | = | 0.8 | x | 0.2 | x | 6.625 | x | 17.32 | | | = | 18.36 | t | |
| Roof beams | = | 2.5 | x | 0.2 | x | 0.216 | x | 0.331 | x | 6 | = | 0.215 | t | |
| Plinth beam | = | 2.5 | x | 0.2 | x | 0.331 | x | 0.331 | x | 1 | = | 0.055 | t | |
| Self wt | = | 2.5 | x | 0.45 | x | 0.3 | x | 22 | | | = | 7.425 | t | |
| | | | | | | | | | | | | 56.64 | t | |
| | | | | | | Total | | | | | = | **56.64** | **t** | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Using size of column to be** | = | **450** | **X** | **300** | **mm** | | | | | | |
| **With 6/20 Rods, Ast** | = | 6 | x | 314 | + | 3 | x | 113 | = | 2223 | sqmm |
| Capacity of column | = | 450 | x | 300 | x | 6 | + | 2223 | x | 190 | |
| | = | **123.2 t** | | > | | **85 t** | | | | | |
| Minimum Reinforcement | = | 0.008 | x | 45 | x | 30 | = | 10.8 | sqcm | < | 22.23 sqcm |
| % of Reinforcement | = | 2223 | / | 45 | x | 30 | = | 1.647 | < | 4 | |

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**COLUMN E4**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of floors | = | 1 | + | 5 | = | 6 | | | | | | |
| Foundation depth | = | 2 | m | | | | | | | | | |
| Ground to floor level | = | 1 | m | | | | | | | | | |
| GFloor to floor height | = | 3.00 | m | | | | | | | | | |
| FFloor to floor height | = | 3.00 | m | | | | | | | | | |
| Thickness of slab assumed | = | 0.125 | m | | | | | | | | | |
| Slab loading t/ sqm | = | 0.623 | t | | | | | | | | | |
| Breadth of beams | = | 0.2 | m | | | | | | | | | |
| Depth of beams assumed | = | 0.44 | m | | | | | | | | | |
| Parapet wall height | = | 1 | m | | | | | | | | | |
| Plinth beams assumed | = | 0.44 | m | | | | | | | | | |
| Total height of wall | = | 16.61 | m | | | | | | | | | |
| Total height of column | = | 22 | m | | | | | | | | | |
| Size of column | = | 0.45 | x | 0.3 | m | | | | | | | |

**Total load:**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Due to slab | = | 6 | x | 3.925 | x | 4.875 | x | 0.623 | | | = | 71.47 | t |
| Wall | = | 0.8 | x | 0.2 | x | 8.8 | x | 16.61 | | | = | 23.39 | t |
| Roof beams | = | 2.5 | x | 0.2 | x | 0.315 | x | 8.8 | x | 6 | = | 8.316 | t |
| Plinth beam | = | 2.5 | x | 0.2 | x | 0.44 | x | 8.8 | x | 1 | = | 1.936 | t |
| Self wt | = | 2.5 | x | 0.45 | x | 0.3 | x | 22 | | | = | 7.425 | t |
| | | | | | | | | | | | | 112.5 | t |
| | | | | | | Total | | | | | = | **112.5** | **t** |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Using size of column to be** | = | **450** | **X** | **300** | **mm** | | | | | | |
| **With 6/25 Rods, Ast** | = | 6 | x | 490.6 | + | 3 | x | 113 | = | 3283 | sqmm |
| Capacity of column | = | 450 | x | 300 | x | 6 | + | 3283 | x | 190 | |
| | = | **143.4 t** | | > | | **141 t** | | | | | |
| Minimum Reinforcement | = | 0.008 | x | 45 | x | 30 | = | 10.8 | sqcm | < | 32.83 sqcm |
| % of Reinforcement | = | 3283 | / | 45 | x | 30 | = | 2.432 | < | 4 | |

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**Design of sections**

**Piles**

Using M30 concrete and TMT bars 550 grade

| | | | |
|---|---|---|---|
| σ ac in concrete | = | 81.6 | kg/sq-cm |
| σ bc in concrete | = | 102 | kg/sq-cm |
| σ ac in steel | = | 1938 | kg/sq-cm |

Vertical load, V ( t ) 220 / 2 = 110

**I. For 600 dia. pile with end bearing**

a) Safe bearing capacity of pile ( t ) = 3.142 x 0.6 x 0.6 x 750 / 4 = 212.1

b) Bearing load / sq-m. 110 / 0.785

140 < 212.1 o.k

c) V / bc d d = 110 x 1500 / 360000 x 30

= 0.015

d) Ve / bc d d d = 0 x 1500 / 1.25E+08 x 30

= 0.000

Using 25 dia TMT rods d'/D = 87.5 / 600 = 0.146

Using chart 57 & 58 of SP:16-1980

e) As required (sq-cm.) 0 x 3.142 x 600 x 600 x 30 / 400

0.0

Min area of reinforcement = 0.004 x 3.142 x 60 x 60 / 4

= 11.31 sq-cm

Use 8/25 dia. TMT rods = 8 x 4.909

= 39.27 sq-cm > 11.31 sq-cm

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## Pile cap

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Column size | | | 300 x | 600 | | | |
| Pedestal size | | | 900 x | 2400 | | | |
| Area of pedestal | = | 90 x | 240 = | 21600 | sq-cm | | |
| Actual stress | = | 110 x | 1500 / | 21600 | | | |
| | = | 7.639 kg/sq-cm | | | | | |
| Permissible stress | = | 0.45 x | 300 / ( | 21600 / | 1800 | | |
| | = | 135 x | 3.464 = | 468 kg/sq-cm | | | |

So use plain concrete pedestal of 30cm all around

Coinciding the critical section for shear with outerface of the pile in each direction

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 0.6 | / 2 | + 0.3 | + d/2 | = 0.63 | + 0.3 | |
| | | | 0.6 | + d/2 | = 0.875 | | | | |
| | d/2 | = | 0.875 | - 0.6 | = 0.275 | | | | |
| | d | = | 0.55 | | | | | | |
| Provide | d | = | 0.963 | | | | | | |
| | D | = | 1.05 | | | | | | |
| BM | | = | 1 x | 110 ( | 0.75 - | 0.3 ) | | | |
| | | = | 49.5 m-t | | | | | | |
| Mu/bd2 | | = | 49.5 x | 1.5 x | 100000 /( | 225.0 x | 96.3 x | 96 x 300 ) | |
| | | = | 0.012 x | 30 = | 0.36 | | | | |
| Area of steel required | | = | 0.09 x | 225.0 x | 96.25 / | 100 | | | |
| | | = | 19.92 sq-cm | | | | | | |
| Min steel required | | = | 0.0012 x | 90 x | 225 | | | | |
| | | = | 24.3 sq-cm | | | | | | |
| Use 25dia. TMT bars At 100 c | | = | 10 x | 4.91 = | 49.06 | | | | |

## Shear

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Critical section for shear | = | 225 + | 300 + | 481.25 = | 1006 mm | | |
| The pile outer edge | = | 625 + | 225 = | 850 < | 1006 | | |

So shear reinforcement is not provided

For top of pile cap and pedestal use nominal Reinforcement
Use 16 dia. At 200 crs

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## DESIGN OF PLINTH BEAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Span considered | = | 6.150 m | | | | | | | | |
| Assuming beam size to be | | 200 x | 450 | mm | | | | | | |
| **Load /m :** | | | | | | | | | | |
| Self wt. of beam | = | 2.5 x | 0.2 | x | 0.45 | = | 0.23 t | | | |
| Wall | = | 2.0 x | 0.23 | x | 3.900 | = | 1.79 t | | | |
| | | | | | | | **2.02** t | | | |
| Effective Depth of beam | = | 450 - | 25 | - | 10 | = | 415 mm | | | |
| Design negative B.M | = | 2.02 x | 6.150 | x | 6.150 | x | 0.100 = | 7.64 t-m | | |
| Mu/ fck bdd | = | 7.64 x | 1.5 | x | 100000 | | = | 0.133 | | |
| | | 250 x | 20 | x | 41.50 | x | 41.50 | | | |
| Ast required | = | 0.1929 x | 250 | x | 20.00 | x | 41.50 = | 9.53 sqcm | | |
| | | | 4200 | | | | | | | |
| **Use 2/12 + 4/16 dia hsd rods,** | | | **Ast** | = | **10.30 sqcm** | | > | **9.53 sqcm** | | |
| Design Positive B.M | = | 2.02 x | 6.150 | x | 6.150 | x | 0.08333 = | 6.36 t-m | | |
| Mu/ fck bdd | = | 6.36 x | 1.5 | x | 100000 | | = | 0.111 | | |
| | | 250 x | 20 | x | 41.50 | x | 41.50 | | | |
| Ast required | = | 0.1607 x | 250 | x | 20.00 | x | 41.50 = | 7.94 sqcm | | |
| | | | 4200 | | | | | | | |
| **Use 2/12 + 4/16 dia hsd rods,** | | | **Ast** | = | **10.30 sqcm** | | > | **7.94 sqcm** | | |
| Shear force | = | 2.02 x | 1.000 | / | 1.00 | = | 2.02 t | | | |
| Shear stress | = | 2.02 x | 1.00 | x | 10000 | / | 200 x | 415 = | 0.24 N/sqmm | |
| 100As/ bd | = | 100 x | 10.30 | / | 20.00 | x | 41.50 = | 1.24 | | |
| Permissible shear stress | = | 0.44 N/sqmm | | < | 0.24 N/sqmm | | | | | |
| Unbalanced shear stress | = | 0.24 - | 0.442 | = | -0.20 N/sqmm | | | | | |
| Unbalanced shear force | = | -0.20 x | 200 | x | 415 | / | 10000 = | -1.65 t | | |
| Using 8 dia TMT 2 legged stirrups at | | | 100 | crs | | | | | | |
| Shear Capacity | = | 0.87 x | 415 | x | 100.48 | x | 415 / | 100 x | 10000 | |
| | = | 15.1 t | > | -2 t | | | | | | |

## RESULT :

**Beam section** = **200 X 450 mm**

**Use 2/12 + 4/16 dia hsd rods, at top**

**Use 2/12 + 4/16 dia hsd rods, at bottom**

Using 8 dia TMT 2 legged stirrups at **100 crs**


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## DESIGN OF PLINTH BEAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Span considered | = | 5.700 m | | | | | | | | |
| Assuming beam size to be | | 200 x | 450 | mm | | | | | | |
| **Load /m :** | | | | | | | | | | |
| Self wt. of beam | = | 2.5 x | 0.2 | x | 0.45 | = | 0.23 t | | | |
| Wall | = | 2.0 x | 0.23 | x | 3.900 | = | 1.79 t | | | |
| | | | | | | | **2.02** t | | | |
| Effective Depth of beam | = | 450 - | 25 | - | 8 | = | 417 mm | | | |
| Design negative B.M | = | 2.02 x | 5.700 | x | 5.700 | x | 0.100 = | 6.56 t-m | | |
| | = | 6.56 x | 1.5 | x | 100000 | | = | 0.113 | | |
| | | 250 x | 20 | x | 41.70 | x | 41.70 | | | |
| Ast required | = | 0.1641 x | 250 | x | 20.00 | x | 41.70 = | 8.15 sqcm | | |
| | | | 4200 | | | | | | | |
| **Use 2/12+4/16 dia hsd rods,** | | | **Ast** | **=** | **10.30 sqcm** | | **>** | **8.15 sqcm** | | |
| Design Positive B.M | = | 2.02 x | 5.700 | x | 5.700 | x | 0.08333 = | 5.47 t-m | | |
| Mu/ fck bdd | = | 5.47 x | 1.5 | x | 100000 | | = | 0.094 | | |
| | | 250 x | 20 | x | 41.70 | x | 41.70 | | | |
| Ast required | = | 0.1367 x | 250 | x | 20.00 | x | 41.70 = | 6.79 sqcm | | |
| | | | 4200 | | | | | | | |
| **Use 2/12+4/16 dia hsd rods,** | | | **Ast** | **=** | **10.30 sqcm** | | **>** | **6.79 sqcm** | | |
| Shear force | = | 2.02 x | 5.700 | / | 2.00 | = | 5.75 t | | | |
| Shear stress | = | 5.75 x | 1.50 | x | 10000 | / | 200 x | 417 = | 1.03 N/sqmm | |
| 100As/ bd | = | 100 x | 10.30 | / | 20.00 | x | 41.70 = | 1.23 | | |
| Permissible shear stress | = | 0.44 N/sqmm | | < | 1.03 N/sqmm | | | | | |
| Unbalanced shear stress | = | 1.03 - | 0.442 | = | 0.59 N/sqmm | | | | | |
| Unbalanced shear force | = | 0.59 x | 200 | x | 417 | / | 10000 = | 4.94 t | | |
| Using 8 dia TMT 2 legged stirrups at | | | 100 | crs | | | | | | |
| Shear Capacity | = | 0.87 x | 415 | x | 100.48 | x | 417 / | 100 x | 10000 | |
| | = | 15.1 t | > | 5 | t | | | | | |

**RESULT :**

**Beam section = 200 X 450 mm**
**Use 2/12+4/16 dia hsd rods, at top**
**Use 2/12+4/16 dia hsd rods, at bottom**
Using 8 dia TMT 2 legged stirrups at **100 crs**

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## DESIGN OF PLINTH BEAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Span considered | = | 3.850 m | | | | | | | | |
| Assuming beam size to be | | 200 x | 450 | mm | | | | | | |
| **Load /m :** | | | | | | | | | | |
| Self wt. of beam | = | 2.5 x | 0.2 | x | 0.45 | = | 0.23 t | | | |
| Wall | = | 2.0 x | 0.23 | x | 3.900 | = | 1.79 t | | | |
| | | | | | | | **2.02** t | | | |
| Effective Depth of beam | = | 450 - | 25 | - | 8 | = | 417 mm | | | |
| Design negative B.M | = | 2.02 x | 3.850 | x | 3.850 | x | 0.083 = | 2.49 t-m | | |
| Mu/ fck bdd | = | 2.49 x | 1.5 | x | 100000 | | = | 0.043 | | |
| | | 250 x | 20 | x | 41.70 | x | 41.70 | | | |
| Ast required | = | 0.0624 x | 250 | x | 20.00 | x | 41.70 = | 3.10 sqcm | | |
| | | | 4200 | | | | | | | |
| **Use 2/12+1/16 dia hsd rods,** | | | **Ast** | = | **4.27 sqcm** | | > | **3.10 sqcm** | | |
| Design Positive B.M | = | 2.02 x | 3.850 | x | 3.850 | x | 0.08333 = | 2.49 t-m | | |
| Mu/ fck bdd | = | 2.49 x | 1.5 | x | 100000 | | = | 0.043 | | |
| | | 250 x | 20 | x | 41.70 | x | 41.70 | | | |
| Ast required | = | 0.0624 x | 250 | x | 20.00 | x | 41.70 = | 3.10 sqcm | | |
| | | | 4200 | | | | | | | |
| **Use 2/12+1/16 dia hsd rods,** | | | **Ast** | = | **4.27 sqcm** | | > | **3.10 sqcm** | | |
| Shear force | = | 2.02 x | 3.850 | / | 2.00 | = | 3.89 t | | | |
| Shear stress | = | 3.89 x | 1.50 | x | 10000 | / | 200 x | 417 = | 0.70 N/sqmm | |
| 100As/ bd | = | 100 x | 4.27 | / | 20.00 | x | 41.70 = | 0.51 | | |
| Permissible shear stress | = | 0.44 N/sqmm | | < | 0.70 N/sqmm | | | | | |
| Unbalanced shear stress | = | 0.70 - | 0.442 | = | 0.26 N/sqmm | | | | | |
| Unbalanced shear force | = | 0.26 x | 200 | x | 417 | / | 10000 = | 2.14 t | | |
| Using 8 dia TMT 2 legged stirrups at | | | 150 | crs | | | | | | |
| Shear Capacity | = | 0.87 x | 415 | x | 100.48 | x | 417 / | 150 x | 10000 | |
| | = | 10.1 t | > | 2 | t | | | | | |

**RESULT :**

**Beam section** = **200 X 450 mm**

**Use 2/12+1/16 dia hsd rods, at top**

**Use 2/12+1/16 dia hsd rods, at bottom**

Using 8 dia TMT 2 legged stirrups at **150 crs**


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## DESIGN OF ROOF BEAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Span considered | = | 4.700 m | | | | | | | | |
| Assuming beam size to be | | 200 x | 600 | mm | 2.35 | | | | | |
| **Load /m :** | | | | | 5.5225 | | | | | |
| Self wt. of beam | = | 2.5 x | 0.2 | x | 0.475 | = | 0.24 t | | | |
| Wall | = | 2.0 x | 0.2 | x | 3.150 | = | 1.26 t | | | |
| Slab | = | 0.78 x | 11.05 | / | 4.700 | = | 1.82 t | | | |
| | | | | | | | **3.32** t | | | |
| Effective Depth of beam | = | 600 - | 25 | - | 8 | = | 567 mm | | | |
| Breadth of flange | = | 3290 / 12 + | 200 | + | 3 | x | 150 | | | |
| | = | 924 mm | | | | | | | | |
| Design negative B.M | = | 3.32 x | 4.700 | x | 4.700 | x | 0.100 = | 7.33 t-m | | |
| Mu/ fck bdd | = | 7.33 x | 1.5 | x | 100000 | | = | 0.046 | | |
| | | 250 x | 30 | x | 56.70 | x | 56.70 | | | |
| Ast required | = | 0.0684 x | 250 / 5500 | x | 30.00 | x | 56.70 = | 5.29 sqcm | | |
| ~~**Use 2/25 dia hsd rods,**~~ | | | ~~**Ast**~~ | ~~=~~ | ~~**9.81 sqcm**~~ | | ~~>~~ | ~~**5.29 sqcm**~~ | | |
| Design Positive B.M | = | 3.32 x | 4.700 | x | 4.700 | x | 0.1 = | 7.33 t-m | | |
| Mu/ fck bdd | = | 7.33 x | 1.5 | x | 100000 | | = | 0.015 | | |
| | | 250 x | 92.41667 | x | 56.70 | x | 56.70 | | | |
| Ast required | = | 0.0215 x | 250 / 5500 | x | 92.42 | x | 56.70 = | 5.11 sqcm | | |
| **Use 2/25 dia hsd rods,** | | | **Ast** | = | **9.81 sqcm** | | > | **5.11 sqcm** | | |
| Shear force | = | 3.32 x | 4.700 | / | 2.00 | = | 7.80 t | | | |
| Shear stress | = | 7.80 x | 1.50 | x | 10000 | / | 200 x | 567 = | 1.03 N/sqmm | |
| 100As/ bd | = | 100 x | 9.81 | / | 20.00 | x | 56.70 = | 0.87 | | |
| Permissible shear stress | = | 0.53 N/sqmm | | < | 1.03 N/sqmm | | | | | |
| Unbalanced shear stress | = | 1.03 - | 0.525 | = | 0.51 N/sqmm | | | | | |
| ~~Unbalanced shear force~~ | ~~=~~ | ~~0.51 x~~ | ~~200~~ | ~~x~~ | ~~567~~ | ~~/~~ | ~~10000 =~~ | ~~5.75 t~~ | | |
| Using 8 dia TMT 2 legged stirrups at | | | 100 | crs | | | | | | |
| Shear Capacity | = | 0.87 x | 415 | x | 100.48 | x | 567 / | 100 x | 10000 | |
| | = | 20.6 t | > | 6 | t | | | | | |

**RESULT :**

**Beam section** = **200 X 600 mm**

**Use 2/25 dia hsd rods, at top**

~~**Use 2/25 dia hsd rods, at bottom**~~

Using 8 dia TMT 2 legged stirrups at **100 crs**


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## DESIGN OF ROOF BEAM

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Span considered | = | 5.200 | m | | | | | | | | |
| Assuming beam size to be | | 200 | x | 600 | mm | 2.6 | | | | | |
| **Load /m :** | | | | | | 6.76 | | | | | |
| Self wt. of beam | = | 2.5 | x | 0.2 | x | 0.475 | = | 0.24 | t | | |
| Wall | = | 2.0 | x | 0.2 | x | 3.150 | = | 1.26 | t | | |
| Slab | = | 0.71 | x | 13.52 | / | 5.200 | = | 1.85 | t | | |
| | | | | | | | | **3.35** | t | | |
| Effective Depth of beam | = | 600 | - | 25 | - | 8 | = | 567 | mm | | |
| Breadth of flange | = | 3640 / 12 | + | 200 | + | 3 | x | 150 | | | |
| | = | 953 | mm | | | | | | | | |
| Design negative B.M | = | 3.35 | x | 5.200 | x | 5.200 | x | 0.100 | = | 9.06 | t-m |
| Mu/ fck bdd | = | 9.06 | x | 1.5 | x | 100000 | | | = | 0.085 | |
| | | 250 | x | 20 | x | 56.70 | x | 56.70 | | | |
| Ast required | = | 0.1268 | x | 250 / 5500 | x | 20.00 | x | 56.70 | = | 6.54 | sqcm |
| **~~Use 2/25 dia hsd rods,~~** | | | | **~~Ast~~** | = | **~~8.29 sqcm~~** | | | > | **~~6.54 sqcm~~** | |
| Design Positive B.M | = | 3.35 | x | 5.200 | x | 5.200 | x | 0.1 | = | 9.06 | t-m |
| Mu/ fck bdd | = | 9.06 | x | 1.5 | x | 100000 | | | = | 0.018 | |
| | | 250 | x | 95.33333 | x | 56.70 | x | 56.70 | | | |
| Ast required | = | 0.0257 | x | 250 / 5500 | x | 95.33 | x | 56.70 | = | 6.32 | sqcm |
| **Use 2/25 dia hsd rods,** | | | | **Ast** | = | **8.29 sqcm** | | | > | **6.32 sqcm** | |
| Shear force | = | 3.35 | x | 5.200 | / | 2.00 | = | 8.71 | t | | |
| Shear stress | = | 8.71 | x | 1.50 | x | 10000 | / | 200 | x | 567 = | 1.15 N/sqmm |
| 100As/ bd | = | 100 | x | 8.29 | / | 20.00 | x | 56.70 | = | 0.73 | |
| Permissible shear stress | = | 0.53 | N/sqmm | | < | 1.15 | N/sqmm | | | | |
| Unbalanced shear stress | = | 1.15 | - | 0.525 | = | 0.63 | N/sqmm | | | | |
| ~~Unbalanced shear force~~ | = | ~~0.63~~ | ~~x~~ | ~~200~~ | ~~x~~ | ~~567~~ | ~~/~~ | ~~10000~~ | = | ~~7.11~~ | ~~t~~ |
| Using 8 dia TMT 2 legged stirrups at | | | | 100 | crs | | | | | | |
| Shear Capacity | = | 0.87 | x | 415 | x | 100.48 | x | 567 / | | 100 x | 10000 |
| | = | 20.6 | t | > | 7 | t | | | | | |

**RESULT :**

**Beam section = 200 X 600 mm**

**Use 2/25 dia hsd rods, at top**

**~~Use 2/25 dia hsd rods,~~ ~~at bottom~~**

Using 8 dia TMT 2 legged stirrups at **100 crs**


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## DESIGN OF ROOF BEAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Span considered | = | 6.500 m | | | | | | | | |
| Assuming beam size to be | | 200 x | 600 | mm | 3.25 | | | | | |
| | | | | | 10.5625 | | | | | |
| **Load /m :** | | | | | | | | | | |
| Self wt. of beam | = | 2.5 x | 0.2 | x | 0.475 | = | 0.24 t | | | |
| Wall | = | 2.0 x | 0.23 | x | 3.150 | = | 1.45 t | | | |
| Slab | = | 0.78 x | 10.56 | / | 6.500 | = | 1.26 t | | | |
| | | | | | | | **2.95** t | | | |
| Effective Depth of beam | = | 600 - | 25 | - | 8 | = | 567 mm | | | |
| Breadth of flange | = | 4550 / 12 + | 200 | + | 3 | x | 150 | | | |
| | = | 1029 mm | | | | | | | | |
| Design negative B.M | = | 2.95 x | 6.500 | x | 6.500 | x | 0.100 = | 12.45 t-m | | |
| Mu/ fck bdd | = | 12.45 x | 1.5 | x | 100000 | | = | 0.116 | | |
| | | 250 x | 20 | x | 56.70 | x | 56.70 | | | |
| Ast required | = | 0.1742 x | 250 / 5500 | x | 20.00 | x | 56.70 = | 8.98 sqcm | | |
| **Use 2/25 dia hsd rods,** | | | **Ast** | = | **12.06 sqcm** | | > | **8.98 sqcm** | | |
| Design Positive B.M | = | 2.95 x | 6.500 | x | 6.500 | x | 0.1 = | 12.45 t-m | | |
| Mu/ fck bdd | = | 12.45 x | 1.5 | x | 100000 | | = | 0.023 | | |
| | | 250 x | 102.9167 | x | 56.70 | x | 56.70 | | | |
| Ast required | = | 0.0327 x | 250 / 5500 | x | 102.92 | x | 56.70 = | 8.68 sqcm | | |
| **Use 2/25 dia hsd rods,** | | | **Ast** | = | **12.06 sqcm** | | > | **8.68 sqcm** | | |
| Shear force | = | 2.95 x | 6.500 | / | 2.00 | = | 9.57 t | | | |
| Shear stress | = | 9.57 x | 1.50 | x | 10000 | / | 200 x | 567 = | 1.27 | N/sqmm |
| 100As/ bd | = | 100 x | 12.06 | / | 20.00 | x | 56.70 = | 1.06 | | |
| Permissible shear stress | = | 0.53 N/sqmm | | < | 1.27 N/sqmm | | | | | |
| Unbalanced shear stress | = | 1.27 - | 0.525 | = | 0.74 N/sqmm | | | | | |
| Unbalanced shear force | = | 0.74 x | 200 | x | 567 | / | 10000 = | 8.41 t | | |
| Using 8 dia TMT 2 legged stirrups at | | | 150 | crs | | | | | | |
| Shear Capacity | = | 0.87 x | 415 | x | 100.48 | x | 567 / | 150 x | 10000 | |
| | = | 13.7 t | > | 8 | t | | | | | |

**RESULT :**

**Beam section = 200 X 600 mm**

**Use 2/25 dia hsd rods, at top**

**Use 2/25 dia hsd rods, at bottom**

Using 8 dia TMT 2 legged stirrups at **150 crs**


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## ROOF SLAB DESIGN

**LOAD/ m2**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Clear short span | = | 3040 mm | | 3.04 | | | | | | |
| | = | 4761 mm | | 4.76 | | | | | | |
| Ly / Lx | = | 1.5661 | < | 1.50 | **DESIGN AS TWO WAY SLAB** | | | | | |
| Slab Thickness Assumed | = | 125 mm | | | | | | | | |
| Self weight of slab | = | 2.4 | x | 0.125 | = | 0.3 | t | | | |
| LIVE LOAD | = | | | | = | 0.50 | t | | | |
| Floor finish | = | 0.1 | x | 2.00 | = | 0.20 | t | | | |
| | | | | **Total** | = | 1.000 | or | **1.00** | t | |
| Effective Depth of slab | = | 125 | - | 25 | - | 4 | = | 96 | mm | |
| Effective short span | = | 3040 | + | 96 | = | 3136 mm | | | | |
| Effective long span | = | 4761 | + | 96 | = | 4857 mm | | | | |

Three edges discontinuous, one short edge continuous

**B.M. due to UDL**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Negative short span B.M | = | 0.000 | x | 3.136 | x | 3.136 | x | 1.00 | = | 0 m.t |
| positive short span B.M | = | 0.076 | x | 3.136 | x | 3.136 | x | 1.00 | = | 0.747 m.t |
| Negative long span B.M | = | 0.057 | x | 3.136 | x | 3.136 | x | 1.00 | = | 0.561 m.t |
| positive long span B.M | = | 0.043 | x | 3.136 | x | 3.136 | x | 1.00 | = | 0.423 m.t |

**Short span**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ~~Mu / bdd~~ | = | ~~0.00~~ | x | ~~1.00~~ | x | ~~100000~~ | | | = | ~~0.00~~ |
| | | 9.807 | x | 100 | x | 9.60 | x | 9.6 | = | |
| Ast Required | = | 0.0000 | x | 1.00 | x | 100.00 | x | 9.60 | = | 0.0 sqcm |
| | | | | | 100 | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3 Sqcm > 0.0 Sqcm** |
| Mu / bdd | = | 0.75 | x | 1.00 | x | 100000 | | | = | 0.83 |
| | | 9.807 | x | 100 | x | 9.60 | x | 9.6 | = | |
| Ast Required | = | 0.2400 | x | 1.00 | x | 100.00 | x | 9.60 | = | 2.3 sqcm |
| | | | | | 100 | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3 Sqcm > 2.3 Sqcm** |

**Long span**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mu / bdd | = | 0.56 | x | 1.50 | x | 100000 | | | = | 1.11 |
| | | 9.807 | x | 100.00 | x | 8.80 | x | 8.8 | = | |
| ~~Ast Required~~ | = | ~~0.3250~~ | x | ~~1.00~~ | x | ~~100.00~~ | x | ~~8.80~~ | = | ~~2.9 sqcm~~ |
| | | | | | 100 | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3 Sqcm > 2.9 Sqcm** |
| Mu / bdd | = | 0.42 | x | 1.50 | x | 100000 | | | = | 0.84 |
| | | 9.807 | x | 100.00 | x | 8.80 | x | 8.8 | = | |
| Ast Required | = | 0.2430 | x | 1.00 | x | 100.00 | x | 8.80 | = | 2.1 sqcm |
| | | | | | 100 | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3 Sqcm > 2.1 Sqcm** |

**RESULT :**

| | | |
|---|---|---|
| **Use Thickness of Slab** | = | **125 mm** |
| **Main rods** | = | **Use 8 dia hsd rods at 150 crs** |
| **Distributors** | = | **Use 8 dia hsd rods at 150 crs** |


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**LOAD/ m2**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clear short span | = | 3040 | mm | | 3.04 | | | | | | | |
| | = | 3040 | mm | | 3.04 | | | | | | | |
| Ly / Lx | = | 1 | < | | 1.00 | **DESIGN AS TWO WAY SLAB** | | | | | | |
| Slab Thickness Assumed | = | 125 | mm | | | | | | | | | |
| Self weight of slab | = | 2.4 | x | 0.115 | = | 0.276 | t | | | | | |
| LIVE LOAD | = | | | | = | 0.75 | t | | | | | |
| ~~Floor finish~~ | = | ~~0.1~~ | ~~x~~ | ~~2.00~~ | = | ~~0.20~~ | ~~t~~ | | | | | |
| | | | | **Total** | = | 1.226 | or | **1.25** | t | | | |
| Effective Depth of slab | = | 115 | - | 20 | - | 5 | = | 90 | mm | | | |
| Effective short span | = | 3040 | + | 90 | = | 3130 | mm | | | | | |
| Effective long span | = | 3040 | + | 90 | = | 3130 | mm | | | | | |

Two long edges discontinuous

**B.M. due to UDL**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Negative short span B.M | = | 0.000 | x | 3.130 | x | 3.13 | x | 1.25 | = | 0 | m.t | |
| positive short span B.M | = | 0.056 | x | 3.130 | x | 3.13 | x | 1.25 | = | 0.686 | m.t | |
| Negative long span B.M | = | 0.000 | x | 3.130 | x | 3.13 | x | 1.25 | = | 0 | m.t | |
| positive long span B.M | = | 0.056 | x | 3.130 | x | 3.13 | x | 1.25 | = | 0.686 | m.t | |

**Short span**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mu / bdd | = | 0.00 | x | 1.00 | x | 100000 | | | = | 0.00 | | | | |
| | | 9.807 | x | 100 | x | 9.00 | x | 9.0 | = | | | | | |
| Ast Required | = | 0.0000 | x | 1.00 | x | 100.00 | x | 9.00 | = | 0.0 | sqcm | | | |
| | | | | | 100 | | | | | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3** | **Sqcm** | **>** | **0.0** | **Sqcm** |
| Mu / bdd | = | 0.69 | x | 1.00 | x | 100000 | | | = | 0.86 | | | | |
| | | 9.807 | x | 100 | x | 9.00 | x | 9.0 | = | | | | | |
| Ast Required | = | 0.2590 | x | 1.00 | x | 100.00 | x | 9.00 | = | 2.3 | sqcm | | | |
| | | | | | 100 | | | | | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3** | **Sqcm** | **>** | **2.3** | **Sqcm** |

**Long span**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mu / bdd | = | 0.00 | x | 1.50 | x | 100000 | | | = | 0.00 | | | | |
| | | 9.807 | x | 100.00 | x | 8.20 | x | 8.2 | = | | | | | |
| Ast Required | = | 0.2520 | x | 1.00 | x | 100.00 | x | 8.20 | = | 2.1 | sqcm | | | |
| | | | | | 100 | | | | | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3** | **Sqcm** | **>** | **2.1** | **Sqcm** |
| Mu / bdd | = | 0.69 | x | 1.50 | x | 100000 | | | = | 1.56 | | | | |
| | | 9.807 | x | 100.00 | x | 8.20 | x | 8.2 | = | | | | | |
| Ast Required | = | 0.1950 | x | 1.00 | x | 100.00 | x | 8.20 | = | 1.6 | sqcm | | | |
| | | | | | 100 | | | | | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3** | **Sqcm** | **>** | **1.6** | **Sqcm** |

**RESULT :**

| | | | | |
|---|---|---|---|---|
| ~~**Use Thickness of Slab**~~ | = | ~~**125 mm**~~ | | |
| **Main rods** | = | **Use 8 dia hsd rods at** | **150** | **crs** |
| **Distributors** | = | **Use 8 dia hsd rods at** | **150** | **crs** |


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**LOAD/ m2**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clear short span | = | 5770 | mm | | 5.77 | | | | | | | |
| | = | 6900 | mm | | 6.90 | | | | | | | |
| Ly / Lx | = | 1.1958 | | < | 1.20 | **DESIGN AS TWO WAY SLAB** | | | | | | |
| Slab Thickness Assumed | = | 175 | mm | | | | | | | | | |
| Self weight of slab | = | 2.4 | | x | 0.175 | = | 0.42 | t | | | | |
| LIVE LOAD | = | | | | | = | 0.20 | t | | | | |
| ~~Floor finish~~ | = | ~~0.05~~ | | ~~x~~ | ~~2.00~~ | = | ~~0.10~~ | ~~t~~ | | | | |
| | | | | | **Total** | = | 0.720 | or | **0.72** | t | | |
| Effective Depth of slab | = | 175 | | - | 20 | - | 5 | = | 150 | mm | | |
| Effective short span | = | 5770 | | + | 150 | = | 5920 | mm | | | | |
| Effective long span | = | 6900 | | + | 150 | = | 7050 | mm | | | | |

one long edges continuous

**B.M. due to UDL**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Negative short span B.M | = | 0.071 | x | | 5.920 | x | 5.92 | x | 0.72 | = | 1.792 | m.t |
| positive short span B.M | = | 0.053 | x | | 5.920 | x | 5.92 | x | 0.72 | = | 1.337 | m.t |
| Negative long span B.M | = | 0.000 | x | | 5.920 | x | 5.92 | x | 0.72 | = | 0 | m.t |
| positive long span B.M | = | 0.043 | x | | 5.920 | x | 5.92 | x | 0.72 | = | 1.085 | m.t |

**Short span**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mu / bdd | = | 1.79 | x | | 1.50 | x | 100000 | | | = | 1.22 | | | |
| | | 9.807 | x | | 100 | x | 15.00 | x | 15.0 | = | | | | |
| Ast Required | = | 0.3590 | x | | 1.00 | x | 100.00 | x | 15.00 | = | 5.4 | sqcm | | |
| | | | | | | 100 | | | | | | | | |
| **Use 10 dia hsd rods at** | **150** | **crs** | **Ast** | | | **=** | **78.50** | **/** | **15.00** | **=** | **5.2** | **Sqcm** | **>** | **5.4 Sqcm** |
| Mu / bdd | = | 1.34 | x | | 1.50 | x | 100000 | | | = | 0.91 | | | |
| | | 9.807 | x | | 100 | x | 15.00 | x | 15.0 | = | | | | |
| Ast Required | = | 0.2590 | x | | 1.00 | x | 100.00 | x | 15.00 | = | 3.9 | sqcm | | |
| | | | | | | ~~100~~ | | | | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3** | **Sqcm** | **>** | **3.9 Sqcm** |

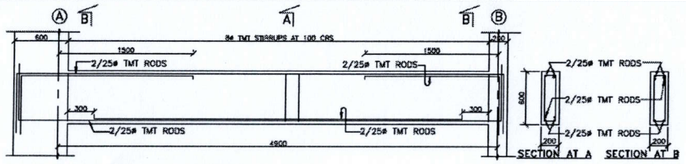
**Long span**

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mu / bdd | = | 0.00 | x | | 1.50 | x | 100000 | | | = | 0.00 | | | |
| | | 9.807 | x | | 100.00 | x | 14.20 | x | 14.2 | = | | | | |
| Ast Required | = | 0.2520 | x | | 1.00 | x | 100.00 | x | 14.20 | = | 3.6 | sqcm | | |
| | | | | | | 100 | | | | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3** | **Sqcm** | **>** | **3.6 Sqcm** |
| Mu / bdd | = | 1.09 | x | | 1.50 | x | 100000 | | | = | 0.82 | | | |
| | | 9.807 | x | | 100.00 | x | 14.20 | x | 14.2 | = | | | | |
| Ast Required | = | 0.1950 | x | | 1.00 | x | 100.00 | x | 14.20 | = | 2.8 | sqcm | | |
| | | | | | | 100 | | | | | | | | |
| **Use 8 dia hsd rods at** | **150** | **crs** | **Ast** | | | **=** | **50.24** | **/** | **15.00** | **=** | **3.3** | **Sqcm** | **>** | **2.8 Sqcm** |

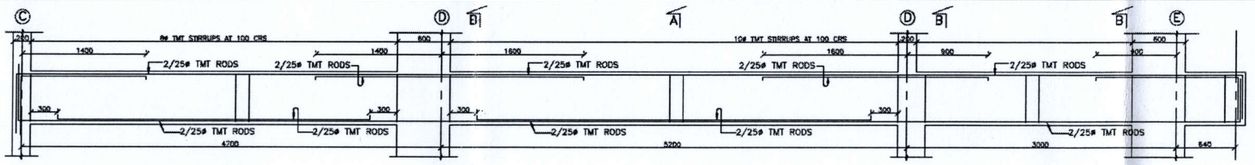
**RESULT :**

| | | | | |
|---|---|---|---|---|
| ~~**Use Thickness of Slab**~~ | = | ~~**175 mm**~~ | | |
| **Main rods** | = | **Use 10 dia hsd rods at** | **150** | **crs** |
| **Distributors** | = | **Use 8 dia hsd rods at** | **150** | **crs** |

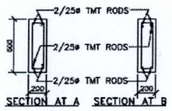
**M. PUNITHAN B.Sc.,M.I.E.**
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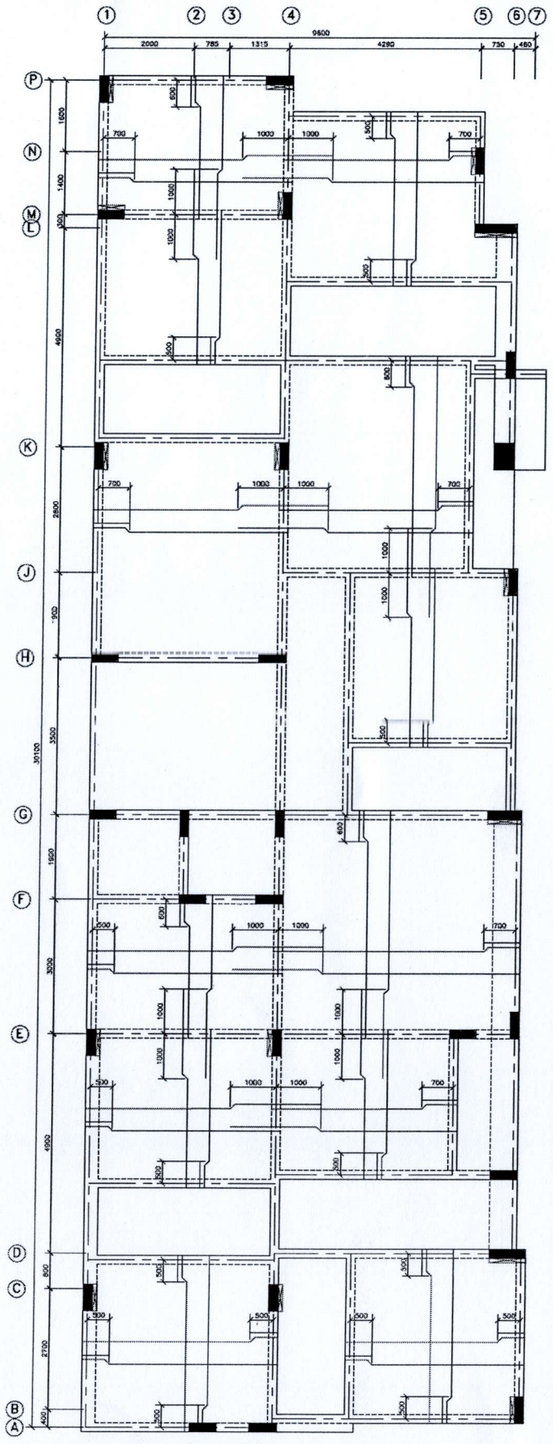



DETAILS OF ROOF BEAM IN ROW 1

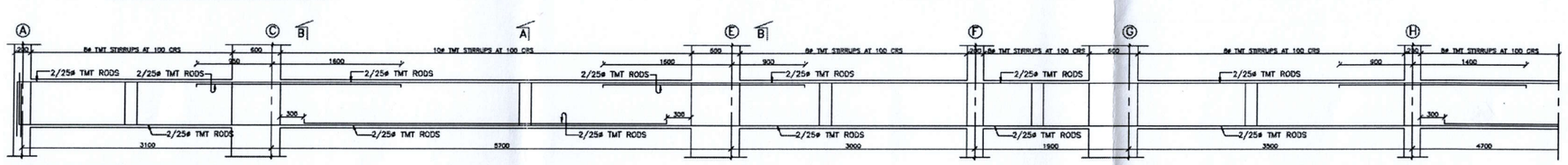



DETAILS OF ROOF BEAM IN ROW 1

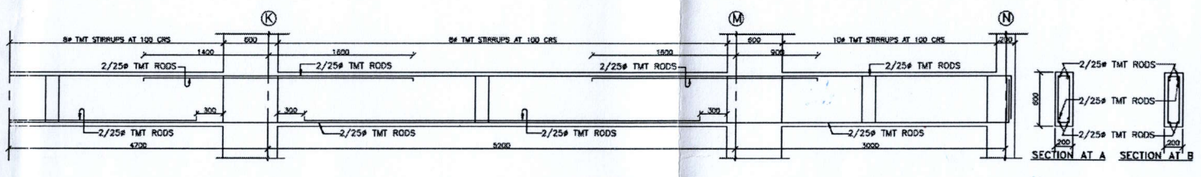


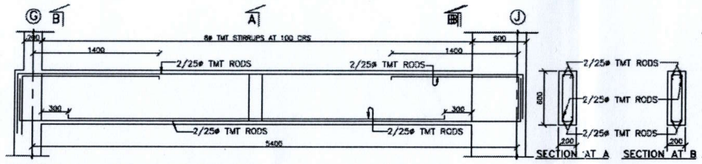




G. F. ROOF SLAB DETAILS – 150 THICK
(10ø TMT RODS 125 CRS BOTHWAYS)

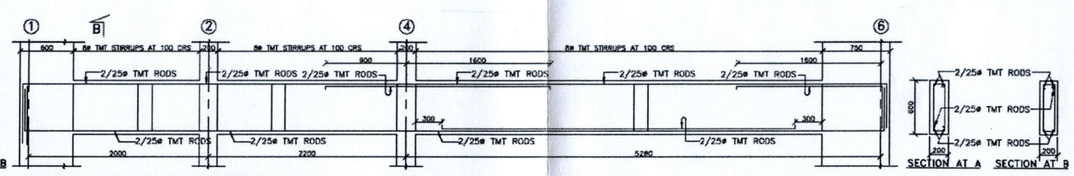



DETAILS OF ROOF BEAM IN ROW 4

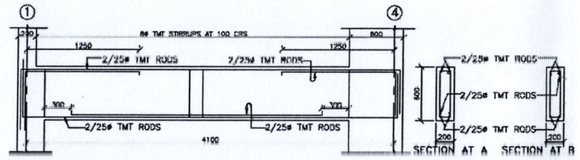


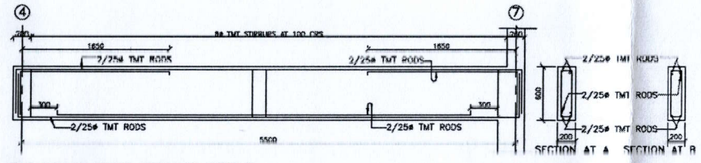

DETAILS OF ROOF BEAM IN ROW 1



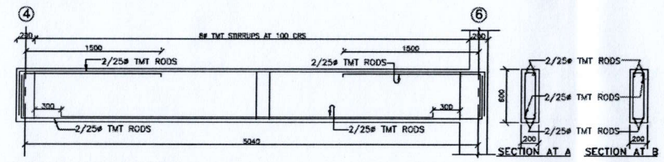

DETAILS OF ROOF BEAM IN ROW G




DETAILS OF ROOF BEAM IN ROW P




DETAILS OF ROOF BEAM IN ROW P




DETAILS OF ROOF BEAM IN ROW J

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Mobile: 9884400273, Email: mpunithan@yahoo.com

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL RCC WORKS TO BE WITH M30 CONCRETE AND TO BE EXECUTED AS PER IS : 456 – 2000, USING 20mm GRADED GRANITE METAL. WATER CEMENT RATIO NOT EXCEEDING 0.45. HIGH YIELD STRENGTH DEFORMED BARS (TOR SHALL CONFORM TO IS: 1786 – 2008 ( Fe 550D ).
3. LAP LENGTH FOR ALL BARS TO BE 45 TIMES THE DIAMETER.
4. CONCRETE COVER FOR ALL MAIN RODS IN ROOF SLAB TO BE 20 AND ROOF BEAMS TO BE 25 UNLESS OTHERWISE STATED.

| ALT | DATE | DESCRIPTION | DRAWN | CHECKED | APPROVED |
|---|---|---|---|---|---|
| 0 | 26/12/25 | AS DRAWN | | | |

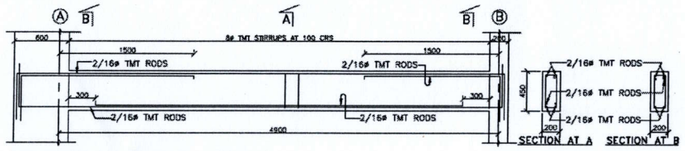
| | |
|---|---|
| CONSULTANTS | MURUGU CONSULTANT<br>9A/10, UMAPATHY STREET EXT. W.MAMBALAM, CHENNAI – 33. Ph No. 24730973. |
| CLIENT | M/S BLUEMOON PROPERTIES<br>CHENNAI. |
| ARCHITECTS | THE MADRAS DESIGN WORKS<br>CHENNAI. |

PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING AT VALASARAVAKKAM.

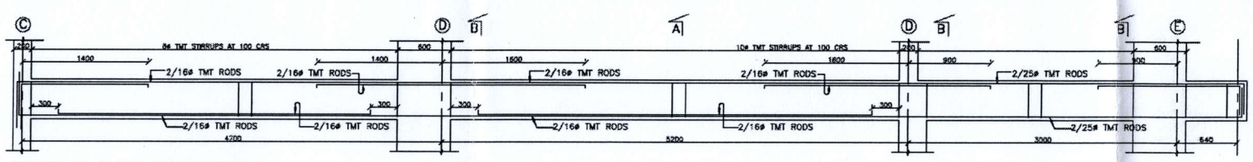
LAYOUT & RCC DETAILS OF G. F. ROOF SLAB & BEAMS

SCALE : 1 : 50, 1 : 25

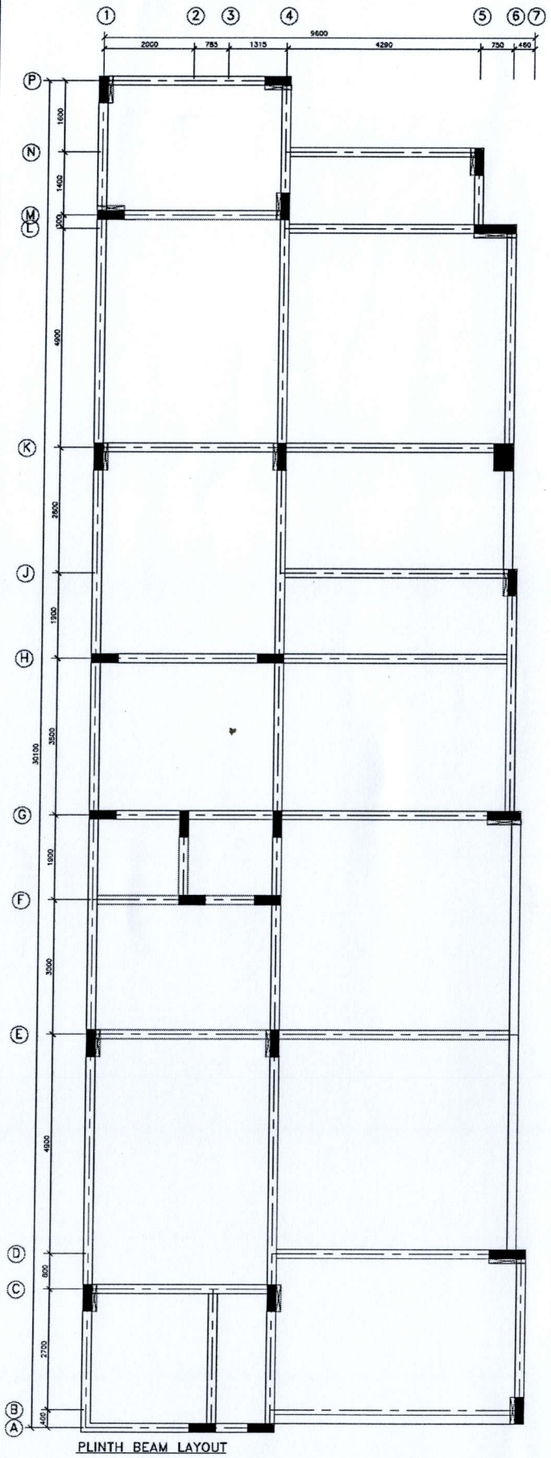
SHEET 3



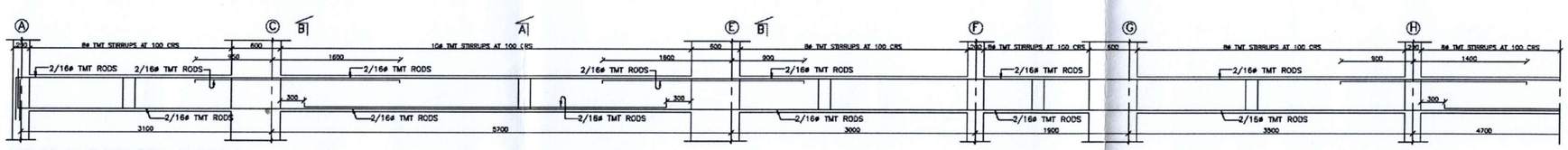

DETAILS OF PLINTH BEAM IN ROW 1



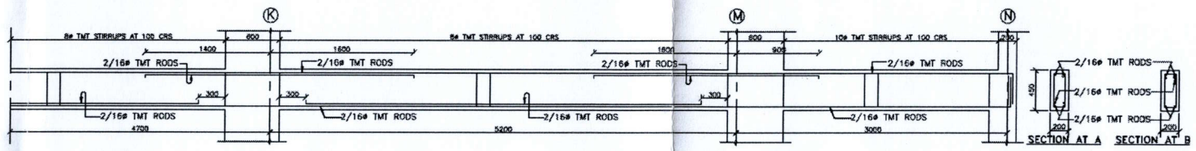

DETAILS OF PLINTH BEAM IN ROW 1

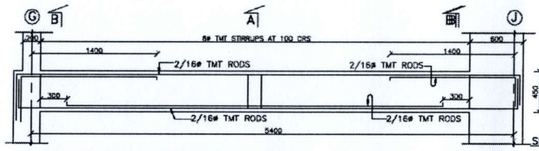



PLINTH BEAM LAYOUT

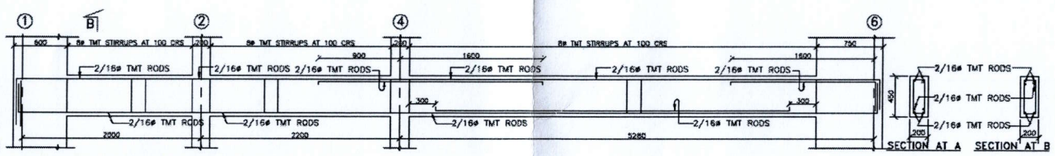



DETAILS OF PLINTH BEAM IN ROW 4

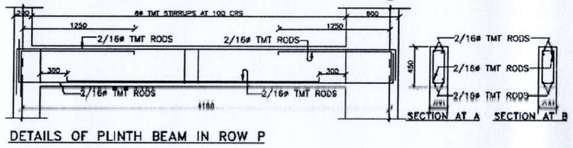


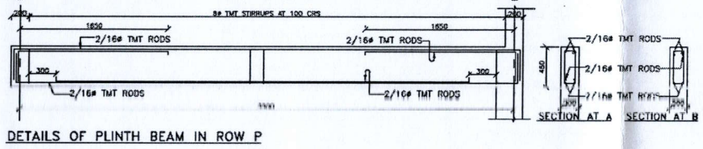

DETAILS OF PLINTH BEAM IN ROW 1



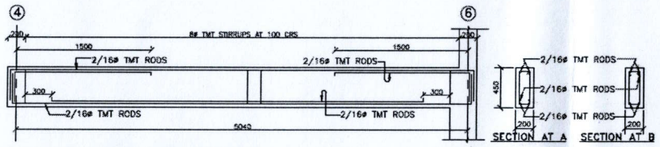

DETAILS OF PLINTH BEAM IN ROW G




DETAILS OF PLINTH BEAM IN ROW P




DETAILS OF PLINTH BEAM IN ROW P




DETAILS OF PLINTH BEAM IN ROW J

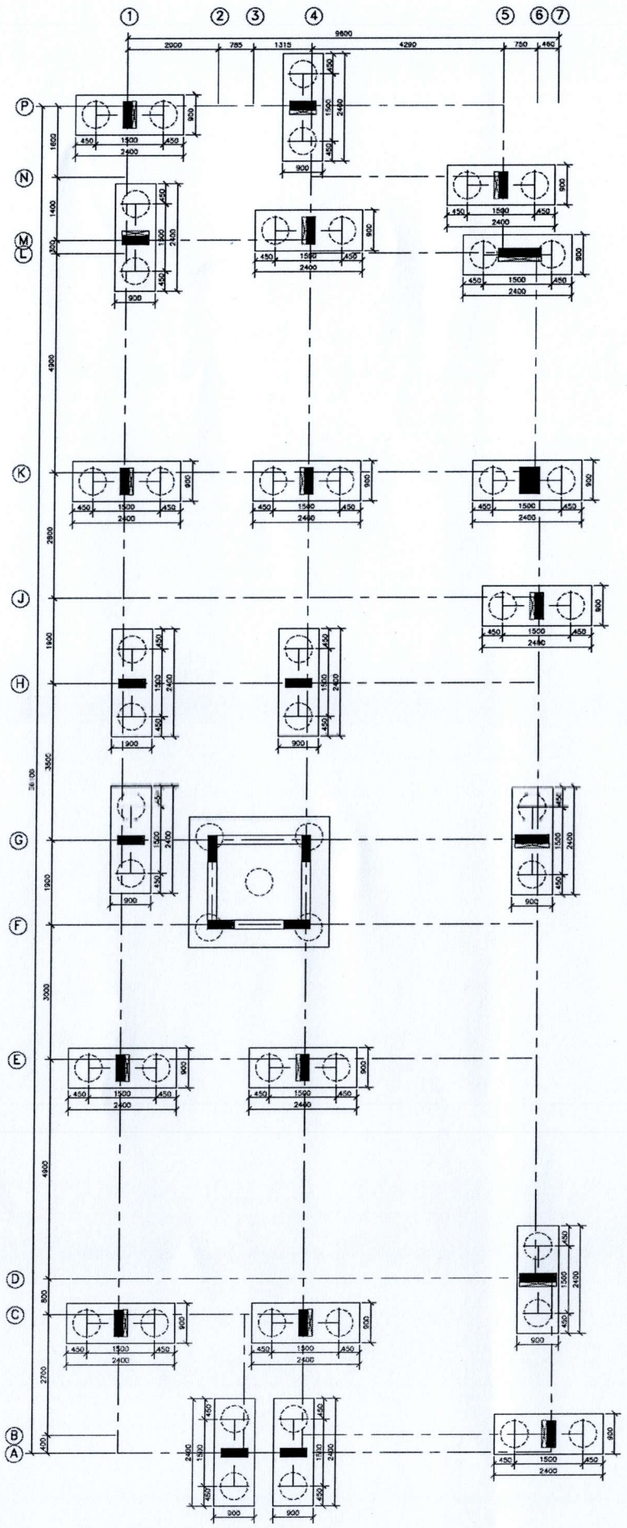
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NOTES:

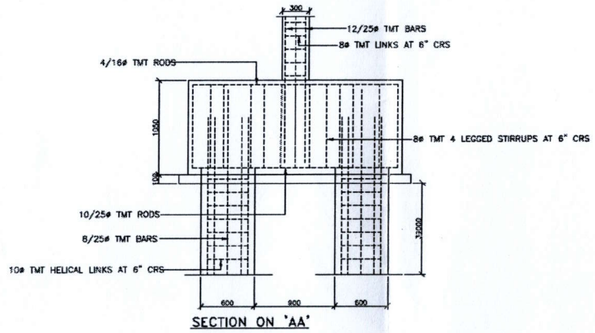
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3. LAP LENGTH FOR ALL BARS TO BE 45 TIMES THE DIAMETER.
4. CONCRETE COVER FOR ALL MAIN RODS IN PILE FOUNDATION TO BE 75 & PLINTH BEAMS TO BE 40 UNLESS OTHERWISE STATED.
5. FOUNDATIONS ARE DESIGNED FOR S + 5 FLOORS.

| ALT | DATE | DESCRIPTION | DRAWN | CHECKED | APPROVED |
|---|---|---|---|---|---|
| 0 | 26/12/25 | AS DRAWN | | | |

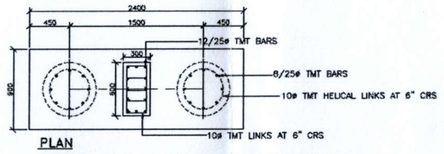
| | |
|---|---|
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| ARCHITECTS | THE MADRAS DESIGN WORKS<br>CHENNAI. |
| | PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING AT VALASARAVAKKAM. |
| | LAYOUT & RCC DETAILS OF PLINTH BEAM |
| | SCALE : 1 : 50, 1 : 25 |
| | DRG.No: MC-199/2025 SHEET 2 |




COLUMN & FOUNDATION LAYOUT

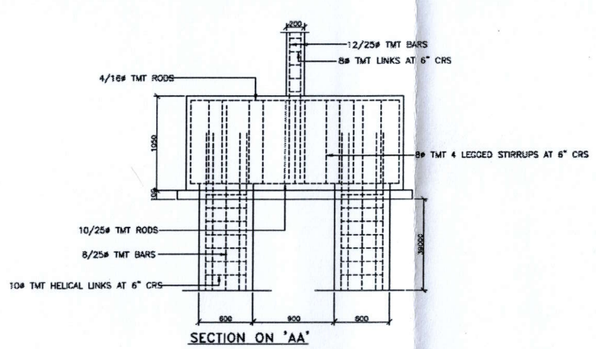



SECTION ON 'AA'

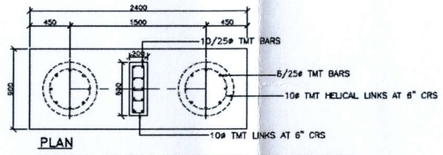



PLAN

DETAILS OF PILE FOUNDATION FOR COLUMNS
A1, A2, A5, B5, D5, E4, F1, F3 & F4 – 9 OFF




SECTION ON 'AA'




PLAN

DETAILS OF PILE FOUNDATION FOR COLUMNS
A1, A2, A5, B5, D5, E4, F1, F3 & F4 – 9 OFF

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| 0 | 26/12/25 | AS DRAWN | | | |

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| | PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING AT VALASARAVAKKAM. |
| | LAYOUT AND DETAILS OF PILE FOUNDATION |
| | SCALE : 1 : 50, 1 : 25 |
| | SHEET 1 |

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.