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Verified RealEstate™
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DIGITALLY VERIFIED RECORD

BLUMOON PROPERTIES.

DESIGN CALCULATION

FOR

RESIDENTIAL BUILDING

35 DWELLING UNITS IN STILT + 5 FLOORS IN SINGLE BLOCK

AT BLOCK NO.H54, KAMARAJAR NAGAR, THIRUVANMIYUR, CHENNAI – 41, COMPRISED IN SURVEY NO. 78/4PT, 78/5PT, 78/16PT, TS NO. 71, BLOCK 71, OF THIRUVANMIYUR VILLAGE, VELACHERRY TALUK, GREATER CHENNAI CORPORATION, ZONE 13, DEVISION 182, TAMILNADU.

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,
West K.K. Nagar, Chennai-600 078.
Mobile: 9884400273, Email: mpunithan@yahoo.com

ARCHITECTS:
M/S DIASTYLE
NO. 65/55, 12TH AVENUE,
ASHOK NAGAR,
CHENNAI .-600083
PHONE:65853326

ENGINEERS:
M/S MURUGU CONSULTANT
NO.9A/10, UMAPATHI STREET EXT,
WEST MAMBALAM,
CHENNAI – 600 033.
PHONE : 9884400273.

MURUGU CONSULTANT
9A/10, Ist Floor, Umapathy Street Ext.
West Mambalam, Chennai – 600 033.

PH: 91 – 9884400273

To
The Chairman,
TNRERA,
EGMORE, Chennai – 600 008.

Dated : 24 - 02 - 2026

STABILITY CERTIFICATE

The detailed engineering and structure design of the proposed building comprising of stilt + 5 floors Residential Building (Height-18.25m) with 35 Dwelling Units availing premium FSI at Block No. H54, Kamarajar Nagar, Thiruvanmiyur, Chennai-600 041 comprised in S.No.78/4PT. 78/5PT, 78/13\6PT, TS No. 71, Block 71, Velacherry Taluk within the Limits of Greater Chennai Corporation Zone -13, Devision -182 has been done by me based on the report of Geo-technical investigation (soil test) done by Mars Synergy Geotech Pvt. Ltd., Report No. MSGTPL/SI-6018/23-24 dated 07/02/24 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/We 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 Codes No 875 and design of earthquake resistant structure as per IS Code No 1893 (part 1) : 2002

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

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Encl.: Structural Design Calculation

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 500 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 500 dia. pile with end bearing

a) Safe bearing capacity of pile (t) = 3.142 x 0.5 x 0.5 x 750 / 4 = 147.3

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

140 < 147.3 o.k

c) V / bc d d = 110 x 1500 / 250000 x 30

= 0.022

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

= 0.000

Using 20 dia TMT rods d'/D = 85 / 500 = 0.17

Using chart 57 & 58 of SP:16-1980

e) As required (sq-cm.) 0 x 3.142 x 500 x 500 x 30 / 400

0.0

Min area of reinforcement = 0.004 x 3.142 x 50 x 50 / 4

= 7.854 sq-cm

Use 8/16 dia. HSD rods = 8 x 2.011

= 16.08 sq-cm > 7.85 sq-cm

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Pile cap

Column size			300	x	450		
Pedestal size			750	x	1900		
Area of pedestal		=	75	x	190	=	14250 sq-cm
Actual stress		=	110	x	1500	/	14250
		=	11.58 kg/sq-cm				
Permissible stress		=	0.45	x	300	/ (	14250 / 1350
		=	135	x	3.249	=	439 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

			0.45	/	2	+	0.3	+	d/2	= 0.63 +	0.3
			0.525	+	d/2	=	0.875				
	d/2	=	0.875	-	0.525	=	0.35				
	d	=	0.7								
Provide	d	=	0.715								
	D	=	0.8								
BM		=	1	x	110	(	0.75	-	0.3)		
		=	49.5 m-t								
Mu/bd2		=	49.5	x	1.5	x	100000 /(	225.0	x 71.5	x 72 x 300)	
		=	0.022	x	30	=	0.65				
Area of steel required		=	0.09	x	225.0	x	71.5 /	100			
		=	14.8 sq-cm								
Min steel required		=	0.0012	x	90	x	225				
		=	24.3 sq-cm								
Use 20dia. TMT bars At 100 c		=	10	x	3.14	=	31.40				

Shear

Critical section for shear	=	225	+	300	+	357.5 =	882.5 mm
The pile outer edge	=	625	+	225	=	850 <	882.5

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	=	3.850 m								
Assuming beam size to be		200 x	450	mm	1.925					
Load /m :					3.70563					
Self wt. of beam	=	2.5 x	0.2	x	0.325	=	0.16 t			
Wall	=	2.0 x	0.23	x	3.150	=	1.45 t			
Slab	=	0.71 x	7.41	/	3.850	=	1.37 t			
							2.98 t			
Effective Depth of beam	=	450 -	25	-	8	=	417 mm			
Breadth of flange	=	2695 / 12 +	200	+	3	x	150			
	=	875 mm								
Design negative B.M	=	2.98 x	3.850	x	3.850	x	0.083 =	3.68 t-m		
Mu/ fck bdd	=	3.68 x	1.5	x	100000		=	0.042		
		250 x	30	x	41.70	x	41.70			
Ast required	=	0.0636 x	250 / 4200	x	30.00	x	41.70 =	4.73 sqcm		
Use 2/12 + 1/16 dia hsd rods,			**Ast**	=	**5.15 sqcm**		>	**4.73 sqcm**		
Design Positive B.M	=	2.98 x	3.850	x	3.850	x	0.08333 =	3.68 t-m		
Mu/ fck bdd	=	3.68 x	1.5	x	100000		=	0.018		
		200 x	87.45833	x	41.70	x	41.70			
Ast required	=	0.0263 x	200 / 4200	x	87.46	x	41.70 =	4.58 sqcm		
Use 2/12 + 1/16 dia hsd rods,			**Ast**	=	**5.15 sqcm**		>	**4.58 sqcm**		
Shear force	=	2.98 x	3.850	/	2.00	=	5.74 t			
Shear stress	=	5.74 x	1.50	x	10000	/	200 x	417 =	1.03 N/sqmm	
100As/ bd	=	100 x	5.15	/	20.00	x	41.70 =	0.62		
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	*417*	/	*10000* =	*4.24 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	>	4	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 **100 crs**

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DESIGN OF ROOF BEAM

Span considered	=	4.500 m								
Assuming beam size to be		200 x	450	mm	2.25					
Load /m :					5.0625					
Self wt. of beam	=	2.5 x	0.2	x	0.325	=	0.16 t			
Wall	=	2.0 x	0.23	x	3.150	=	1.45 t			
Slab	=	0.71 x	10.13	/	4.500	=	1.60 t			
							3.21 t			
Effective Depth of beam	=	450 -	25	-	8	=	417 mm			
Breadth of flange	=	3150 / 12 +	200	+	3	x	150			
	=	913 mm								
Design negative B.M	=	3.21 x	4.500	x	4.500	x	0.083 =	5.42 t-m		
Mu/ fck bdd	=	5.42 x	1.5	x	100000		=	0.094		
		250 x	20	x	41.70	x	41.70			
Ast required	=	0.1404 x	250	x	20.00	x	41.70 =	6.97 sqcm		
			4200							
Use 2/12 + 3/16 dia hsd rods,			**Ast**	=	**8.29 sqcm**		>	**6.97 sqcm**		
Design Positive B.M	=	3.21 x	4.500	x	4.500	x	0.1 =	6.51 t-m		
Mu/ fck bdd	=	6.51 x	1.5	x	100000		=	0.025		
		250 x	91.25	x	41.70	x	41.70			
Ast required	=	0.0357 x	250	x	91.25	x	41.70 =	8.08 sqcm		
			4200							
Use 2/12 + 3/16 dia hsd rods,			**Ast**	=	**8.29 sqcm**		>	**8.08 sqcm**		
Shear force	=	3.21 x	4.500	/	2.00	=	7.23 t			
Shear stress	=	7.23 x	1.50	x	10000	/	200 x	417 =	1.30 N/sqmm	
100As/ bd	=	100 x	8.29	/	20.00	x	41.70 =	0.99		
Permissible shear stress	=	0.53 N/sqmm		<	1.30 N/sqmm					
Unbalanced shear stress	=	1.30 -	0.525	=	0.78 N/sqmm					
Unbalanced shear force	=	0.78 x	200	x	417	/	10000 =	6.47 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	>	6	t					

RESULT :

Beam section	=	**200 X**	**450**	**mm**
Use 2/12 + 3/16 dia hsd rods,		**at top**		
Use 2/12 + 3/16 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	=	5.700	m								
Assuming beam size to be		200	x	450	mm	2.85					
Load /m :						8.1225					
Self wt. of beam	=	2.5	x	0.2	x	0.325	=	0.16	t		
Wall	=	2.0	x	0.23	x	3.150	=	1.45	t		
Slab	=	0.71	x	8.12	/	5.700	=	1.02	t		
								2.63	t		
Effective Depth of beam	=	450	-	25	-	8	=	417	mm		
Breadth of flange	=	3990 / 12	+	200	+	3	x	150			
	=	983	mm								
Design negative B.M	=	2.63	x	5.700	x	5.700	x	0.083	=	7.11	t-m
Mu/ fck bdd	=	7.11	x	1.5	x	100000			=	0.123	
		250	x	20	x	41.70	x	41.70			
Ast required	=	0.1841	x	250 / 4200	x	20.00	x	41.70	=	9.14	sqcm
Use 2/16 + 4/16 dia hsd rods,				**Ast**	=	**12.06**	**sqcm**		>	**9.14**	**sqcm**
Design Positive B.M	=	2.63	x	5.700	x	5.700	x	0.1	=	8.53	t-m
Mu/ fck bdd	=	8.53	x	1.5	x	100000			=	0.030	
		250	x	98.25	x	41.70	x	41.70			
Ast required	=	0.0435	x	250 / 4200	x	98.25	x	41.70	=	10.60	sqcm
Use 2/16 + 4/16 dia hsd rods,				**Ast**	=	**12.06**	**sqcm**		>	**10.60**	**sqcm**
Shear force	=	2.63	x	5.700	/	2.00	=	7.49	t		
Shear stress	=	7.49	x	1.50	x	10000	/	200	x	417 =	1.35 N/sqmm
100As/ bd	=	100	x	12.06	/	20.00	x	41.70	=	1.45	
Permissible shear stress	=	0.53	N/sqmm		<	1.35	N/sqmm				
Unbalanced shear stress	=	1.35	-	0.525	=	0.82	N/sqmm				
Unbalanced shear force	=	0.82	x	200	x	417	/	10000	=	6.85	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	>	7	t					

RESULT :

Beam section = 200 X 450 mm
Use 2/16 + 4/16 dia hsd rods, at top
Use 2/16 + 4/16 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

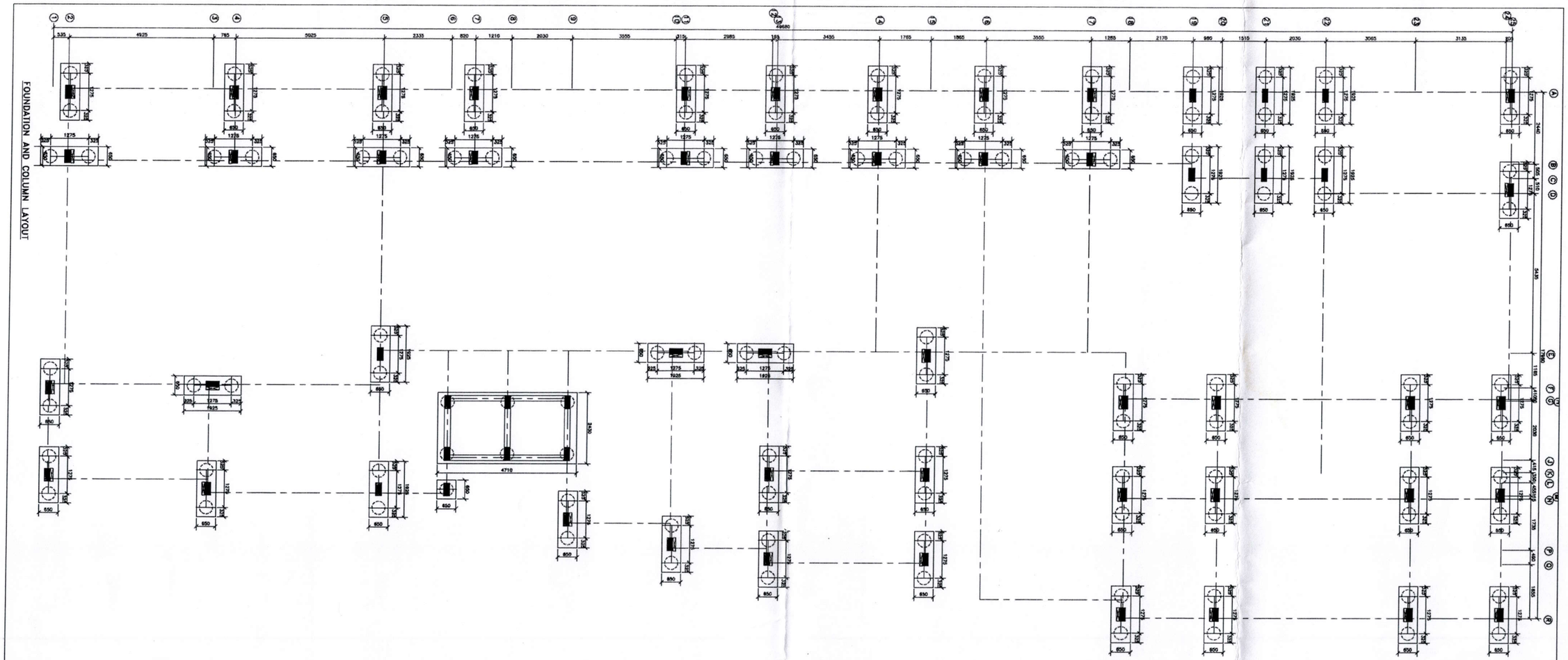
Mu / bdd	=	0.00	x	1.50	x	100000			=	0.00			
		9.807	x	100.00	x	8.20	x	8.2	=				
Ast Required	=	0.2520	x	1.00	x	100.00	x	8.20	=	2.1	sqcm		
					100								
Use 8 dia hsd rods at	**150**	**crs**	**Ast**		**=**	**50.24**	**/**	**15.00**	**=**	**3.3**	**Sqcm**	**>**	**2.1 Sqcm**
Mu / bdd	=	0.69	x	1.50	x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

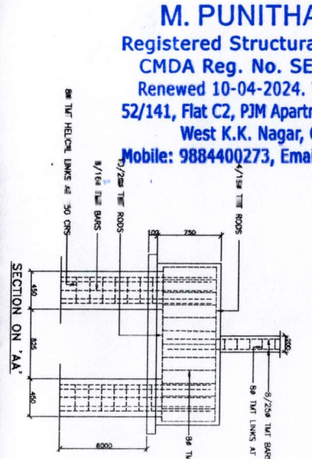
RESULT :

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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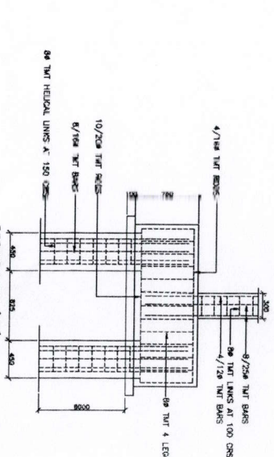
FOUNDATION AND COLUMN LAYOUT





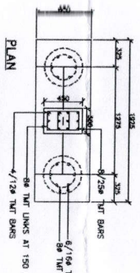
PLAN

DETAILS OF PILE FOUNDATION FOR COLUMNS A1, C1, D6 & E1 - 4 OFF



PLAN

DETAILS OF PILE FOUNDATION FOR COLUMNS A3, A6, B6, H1, J1, J6, K1, K2, L3 & L6 - 10 OFF



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
2. ALL RCC WORKS TO BE WITH M25 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 (FOR SMALL CONFORM TO IS: 1786 - 2008 (Fe 500).
3. LAP LENGTH FOR ALL BARS TO BE 45 TIMES THE DIAMETER
4. CONCRETE COVER FOR ALL MAIN RODS IN FOUNDATION AND PLINTH BEAMS TO BE 40 UNLESS OTHERWISE STATED.
5. FOUNDATIONS ARE DESIGNED FOR S + 5 FLOORS.

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	0	25/06/25	AS Shown		
	ALT	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

CONSULTANTS

MURUGU CONSULTANT

69/10, UMAPATHY STREET EXT, W.MAMBALAM, CHENNAI - 33. Ph. No. 24230873.

CLIENT: M/S BLUEMOON PROPERTIES

CHENNAI - 600 083.

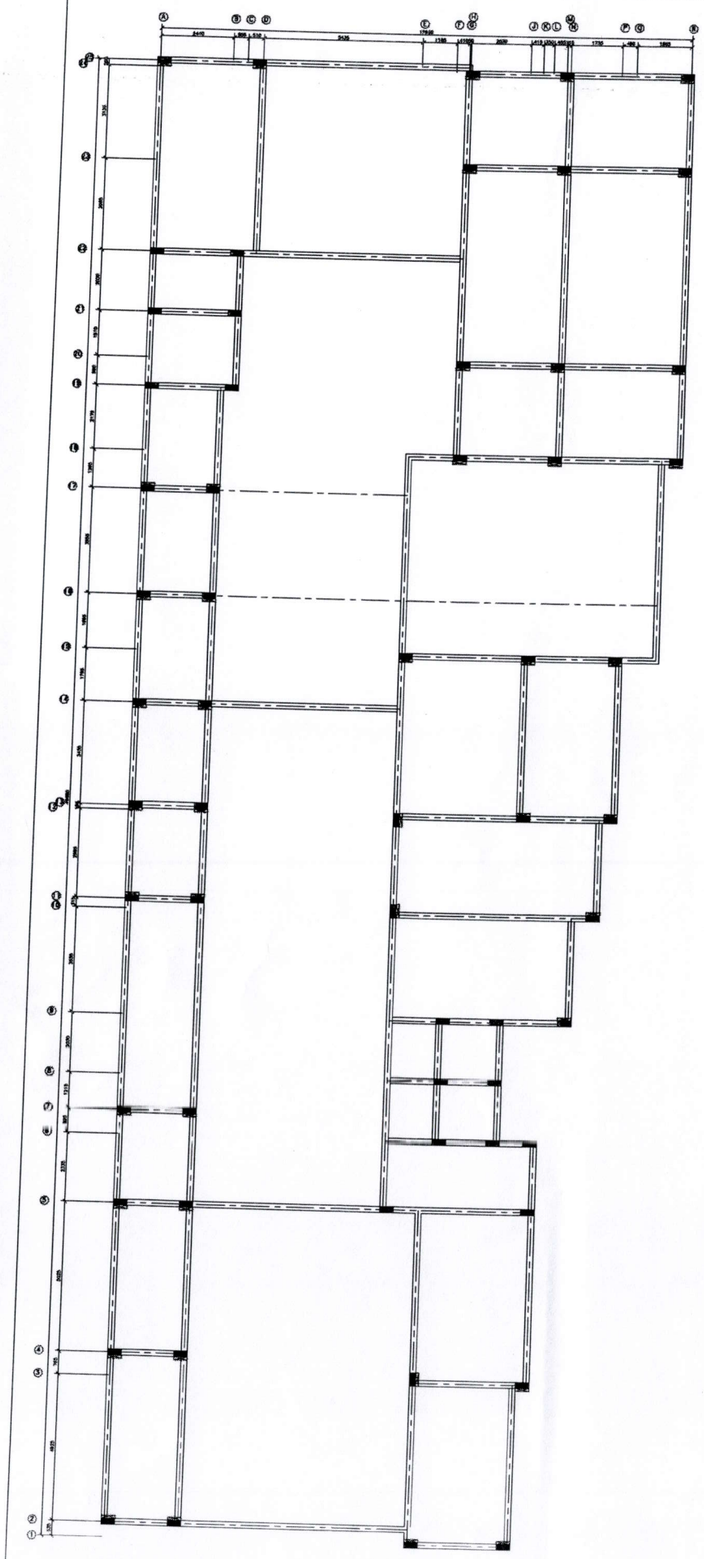
PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING IN THIRUVANMIYUR.

LAYOUT & RCC DETAILS OF FOUNDATION

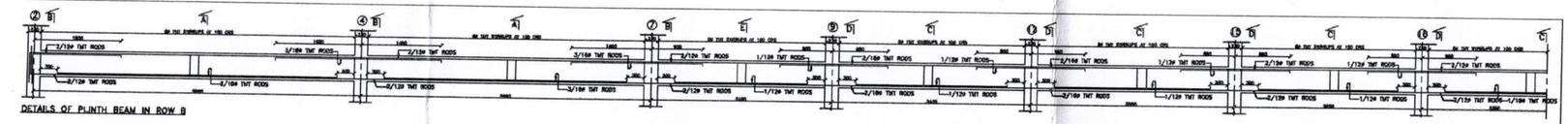
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NO. 65/35, 12TH AVENUE, ASHOK NAGAR
CHENNAI - 600 083.
PHONE : 65853326, 65559407.

SCALE : 1 : 50, 1 : 25

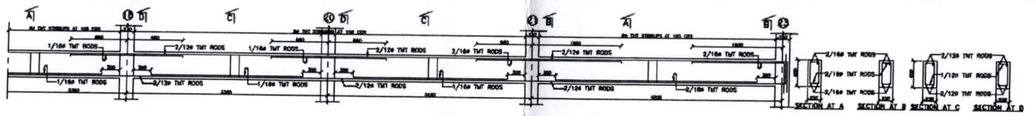
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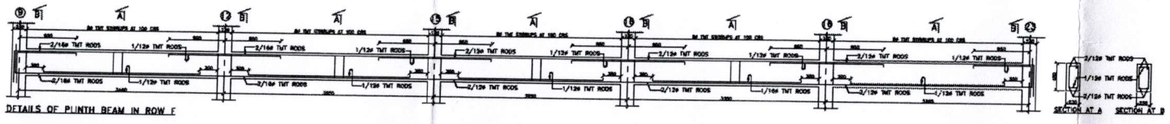


PLINTH BEAM LAYOUT

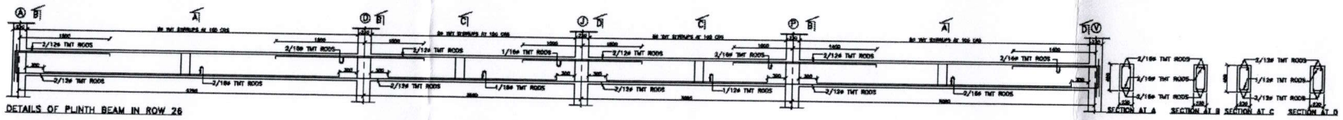


DETAILS OF PLINTH BEAM IN ROW B

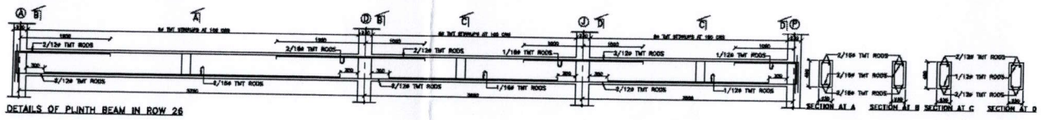




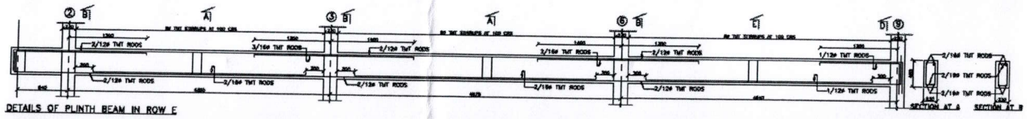
DETAILS OF PLINTH BEAM IN ROW F



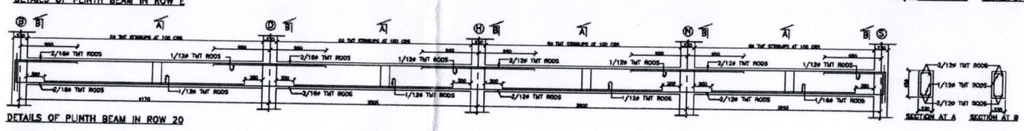
DETAILS OF PLINTH BEAM IN ROW 26



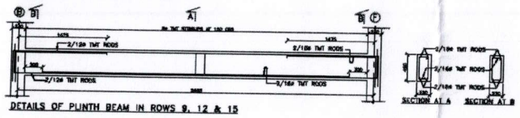
DETAILS OF PLINTH BEAM IN ROW 26



DETAILS OF PLINTH BEAM IN ROW E



DETAILS OF PLINTH BEAM IN ROW 20



DETAILS OF PLINTH BEAM IN ROWS 9, 12 & 15

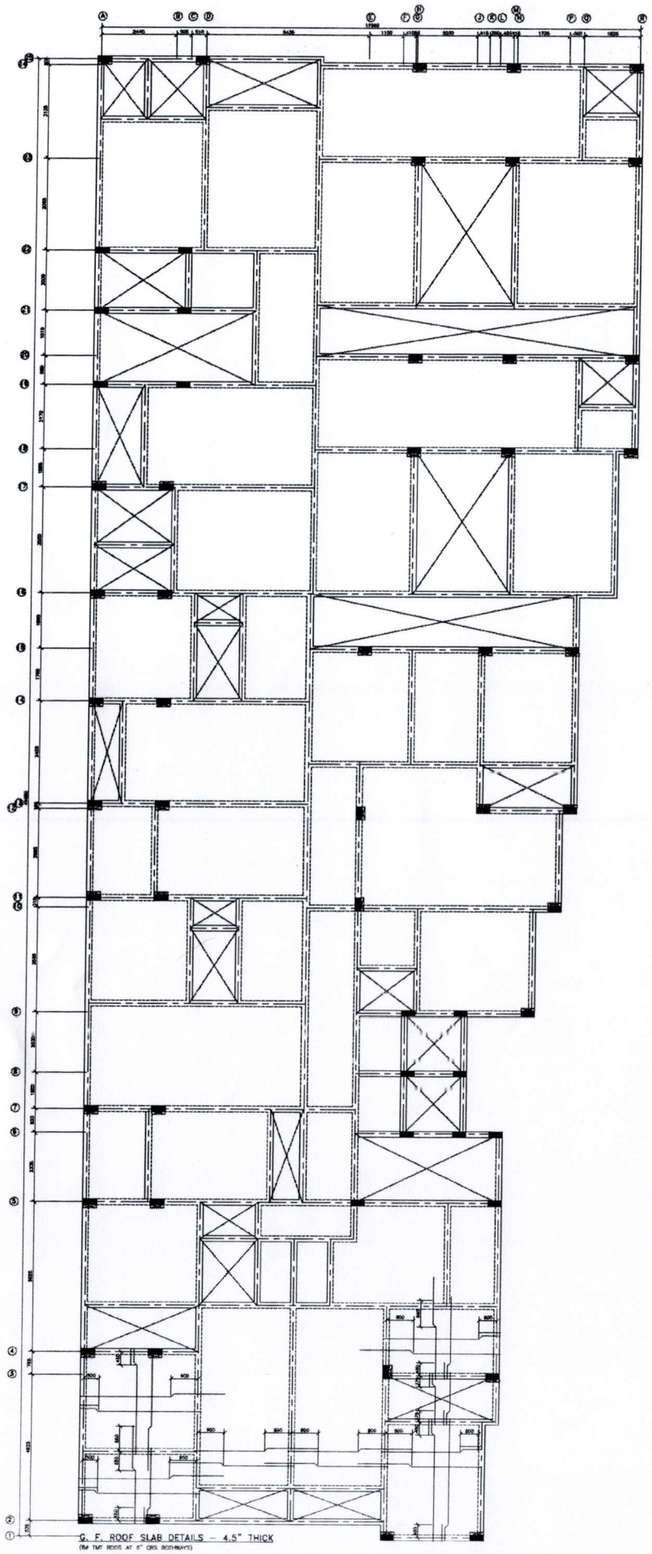
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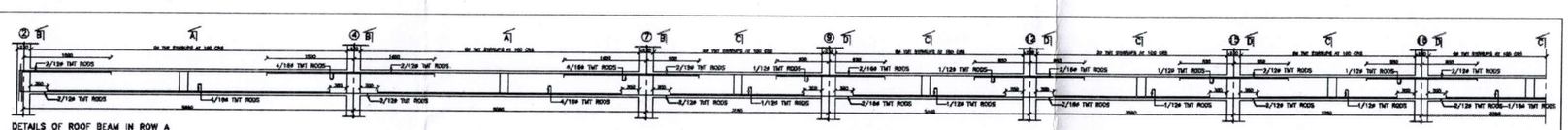
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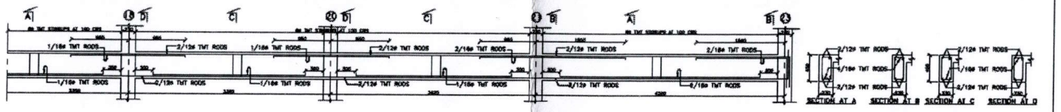
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL RCC WORKS TO BE WITH M30 CONCRETE AND TO BE EXECUTED AS PER IS : 456 – 2000. USING 20mm GRADED GRANITE METAL. WATER CEMENT RATIO NOT EXCEEDING 0.45. HIGH YIELD STRENGTH DEFORMED BARS (TOR SHALL CONFORM TO IS: 1786 – 1985 (Fe 415).
3. LAP LENGTH FOR ALL BARS TO BE 45 TIMES THE DIAMETER.
4. CONCRETE COVER FOR ALL MAIN RODS IN FOUNDATION AND PLINTH BEAMS TO BE 40 UNLESS OTHERWISE STATED.

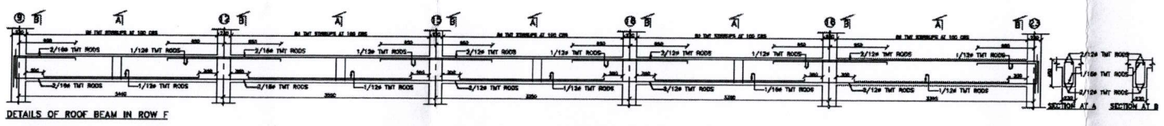
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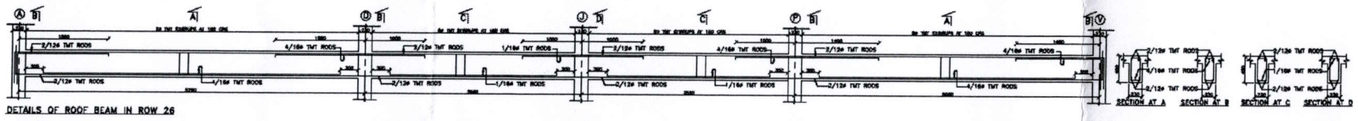
CONSULTANTS	MURUGU CONSULTANT 9A/10, UMAPATHY STREET EXT. W.MAMBALAM, CHENNAI – 33. Ph No.9884400273.
CLIENT	M/S BLUEMOON PROPERTIES CHENNAI – 600 083.
ARCHITECT	diastyle NO. 65/55, 12TH AVENUE, ASHOK NAGAR CHENNAI – 600 083. PHONE : 65853326, 65359407.
	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING IN THIRUVANMIYUR.
	LAYOUT AND RCC DETIALS OF PLINTH BEAM
	SCALE : 1 : 50, 1 : 25
	DRG.No: MC–124/2024 SHEET 2

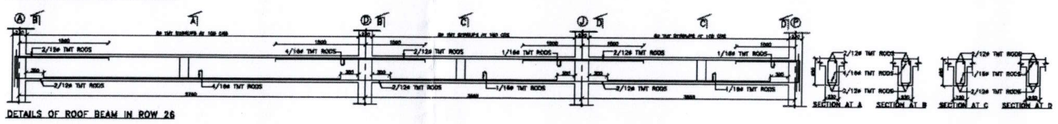


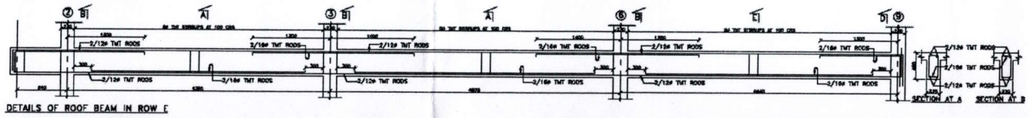


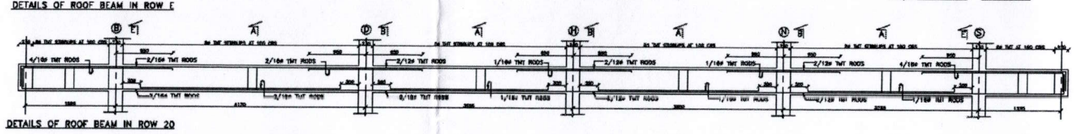


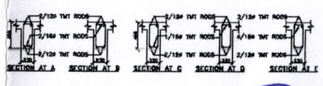


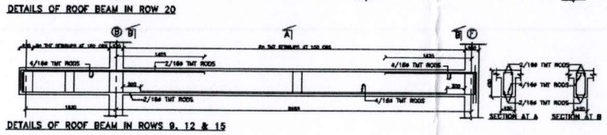












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NOTES:

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 550).
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 40 UNLESS OTHERWISE STATED.

ALT	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
0	23/06/25	AS DRAWN			

CONSULTANTS	MURUGU CONSULTANT 9A/10, UMAPATHY STREET EXT, W.MAMBALAM, CHENNAI – 33. Ph No.9884400273.
CLIENT	M/S BLUEMOON PROPERTIES CHENNAI – 600 083.
ARCHITECT	diastyle NO. 65/55, 12TH AVENUE, ASHOK NAGAR CHENNAI – 600 083. PHONE : 65853326, 65359407.
	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING IN THIRUVANMIYUR. LAYOUT AND RCC DETIALS OF ROOF SLAB & BEAMS SCALE : 1 : 50, 1 : 25 DRG.No: MC-147/2025 SHEET 3

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.