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Structural Stability Certificate

Project Name : Residential building.

Location :PROPOSED CONSTRUCTION OF STILT + 5 FLOORS, AT PLOT NO: E8, 42 ND STREET, NANGANALLUR, CHENNAI-600 061

- Type of structure: R.C.C Framed Structure.
- This is to certify the Proposed construction of a Residential Building At Plot.No: E8, 42nd street Nanganallur, Chennai-600 061
- For Concrete M25 and for steel Fe550
- The loading is taken as per the requirements of Code of practiceIS-875
- The design of the Structure is done as per the latest code IS-456.

Structure analysis & design:

The structure is analyzed as a Space frame structure in STAAD Vi8. Isolated footings, Columns, slabs, Staircase and Toilet slabs are designed as conventional beam and slabs are designed as concrete members. Foundation have been provided for the columns Accordingly, we hereby issue the 'Structural Stability Certificate', certifying by " Structurally safe and Sound"

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STRUCTURAL DESIGN BASIS REPORT OF PROPOSED RESIDENTIAL BUILDING AT NANGANALLUR, CHENNAI.

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STRUCTURAL DESIGN REPORT

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1. Introduction

The proposed residential building at Nanganallur. It is RCC building, with Slit + 5 floors structure. The foundation of the building is adopted as Isolated foundation and SBC adopted is 256 kN/m^2 as per soil report

2. Structural System

The structural system chosen for the buildings consists of slab and RCC Frames at appropriate locations. RCC columns and beams have been laid out in plan in coordination with architectural and services drawings.

3. Design Codes

The RCC design has been based on provisions laid down in IS: 456-2000 - General Construction in plain and reinforced concrete - Code of practice, following Limit state philosophy.

Other codes of practice to be referred to are as follows:

1. IS 875-1987 Part (I to IV) code of practice for design loads (Other than Earthquake) for buildings and structures..
2. IS: 1084-1985 Design and construction of shallow foundations in soils
3. IS: 1904-1986 Design and construction of foundations in soils General Requirements
4. IS: 456-2000Code of practice for plain and reinforced concrete.
5. IS: 8009-1976 Calculation of settlement of shallow foundation.
6. IS 3370- Part I, II, III, IV for water retaining structures.
7. IS:1905 Code of practice for Structural use of masonry
8. SP 24 : Explanatory hand book on IS 456
9. SP 34 : Hand book on concrete reinforcement and detailing.

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10. SP 16 : Handbook on Design Aids for Reinforced concrete to IS 456-1978.

11. SP 20 Explanatory Hand book on Masonry code

12.IS 1893 :2002 Criteria for Earthquake Resistant design of structures.

13. IS 13920: 2016 Ductile Detailing of R.C structures subjected to Seismic forces.

4. Materials

4.1 Grade of Concrete

The Indian Code IS:456-2000, permits a minimum grade of concrete for reinforced concrete members as M 20 and the following Concrete Grades have been used for various Structural Elements.

a) M-25 grade concrete has been used for foundation and columns
b) M-25 grade concrete has been used for plinth beam
c) M-25 grade concrete has been used for beams above plinth level. All concrete shall be conforming IS: 456-2000.

4.2 .Reinforcement

All reinforcement bars to be used in the structural elements shall be High Yield Strength Deformed Thermo-Mechanically Treated bars with yield stress of 550MPa and minimum elongation of 18.0% conforming to IS:1786-1985.

5. Cover to reinforcements

Minimum values for the nominal cover to be provided to all reinforcement, including links of normal weight aggregate concrete depend on the condition of exposure and minimum specified period of fire resistance.

Environmental exposure conditions considered are 'moderate' for sub structure, and 'mild' for superstructure. Minimum fire rating considered is four hours for columns, two hours for beams and one hour for slabs. Clear cover to the main reinforcement in the various structural elements depends on above criteria shall be :

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a)	Footings (Bottom)	50 mm
	Footings (Top and Sides)	75 mm
b)	Columns	40 mm
c)	Beams	25 mm or bar diameter whichever is greater
e)	Slabs	20 mm
f)	Staircase waist slab	20 mm
g)	Water tank walls and slabs	30 mm

6. Loads

6.1 Dead Loads

Following unit weights of building materials have been considered in accordance with IS:875 (Part I)-1987 and IS:1911.

Reinforced cement concrete	:	20 kN/m^3
Brick masonry	:	19kN/m^3
Light Weight Filling in Sunken area	:	10kN/m^3
Cement mortar / plaster	:	20kN/m^3
Floor finish	:	20kN/m^3
Brick bat for terracing	:	20kN/m^2

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6.2 Live Loads

Following live loads have been considered in design in accordance with IS:875 (Part II)-1987.

All floors	:	$2kN/m^2$
Staircase & lobby, library	:	$3kN/m^2$
Terrace floor	:	$1.5kN/m^2$
Seismic Zone	:	Zone III

7. Load Combinations

The building shall be designed for following Load Combinations as indicated in IS:456-2000. The various loads are combined in accordance with the stipulations in IS: 875 (Part 5) - 1987.

a) 1.5 x (Dead load + Live load)

The below load combination are used to check the structure in serviceability condition.

b) 1.0 x (Dead load + Live load)

8. Analysis Procedure

The framing systems (including the sizes of various structural elements) have been worked out, on the basis of a preliminary structural analysis and also in co-ordination with relevant architectural & services requirements.

Space frame analysis using STAAD PRO software has been undertaken to obtain refined results for all load combinations with IS code.

9. Design Methodology

The RCC design shall be based on provisions laid down in IS: 456-2000: Code of practice for plain and reinforced concrete, following Limit state philosophy. Structural design for typical members has been done for the combination of loads that produces maximum stress in the structural elements, and in turn requires maximum

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reinforcing steel provisions. The design of Slab and Isolated foundation is done in Excel Worksheets. The RCC design of Beams, Columns is done in STAAD PRO.

10. Serviceability Requirements (Control of Deflection)

In order to control deflection of structural elements, two alternative methods in the Serviceability Limit State Design are envisaged in Indian Code. The first is by way of calculating the actual deflection as per clause 23.2 (a), (b) of IS:456-2000 and restricting it to specified values. The second method envisages "deemed-to-satisfy" provisions such as limiting the span / depth ratio as per clause 23.2.1 ofIS:456-2000.

The structural design shall satisfy the following requirements of limit state of serviceability:

a) IS: 456-2000 limits final deflection of slab or beam from as cast level to L/250, L being the effective span of the member. The deflection after erection of partitions and completion of finishes is limited to lesser of L/325 and 20 mm.

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APPENDIX –I

DESIGN CALCULATIONS

DESIGN OF FOUNDATIONS

PROPOSED RESIDENTIAL BUILDING AT NANGANALLUR.

Given Data:

Grid ID	=	**A1**		
Node no	=	**26**		
Column / Pedestal size	Breadth	=	**230**	mm
	Depth	=	**450**	mm
	Fck	=	**25**	N/mm^2
	Fy	=	**550**	N/mm^2
Axial Load	Px	=	**926**	kN

Calculations:

Step 1:

Total load	**P**	=	**977**	kN
Safe bearing Capacity of Soil	SBC	=	**256**	**kN/m^2**

Step 2:

Area of the footing					
Total load / SBC	**A**	=	**3.82**	m^2	
Equal spacing in both direction as ' x'	x req	=	808	mm	
	X pro	=	800	mm	
Size of Footing Required	L	=	2.05	m	
	B	=	1.83	m	
Provided	**B**	=	**1.82**	m	6.0 ft
	L	=	**2.12**	m	7.0 ft
Net upward pressure	**p**		**253.25**	**kN/m^2**	
			< SBC Hence safe		

Step 3:

Bending Moment calculation:

for per m strip	**Mu**(Long)	=	121.56	kN.m
Depth required				
	d reqd	=	375.42	mm

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D prov	=	**530**	mm
d eff	=	460	mm

Step 4:

Steel Ast calculation:

Ast req	=	568	mm^2
Select bar dia	=	10	mm
Spacing Required	=	138	mm c/c
Spacing Provided	=	125	mm c/c
Ast pro	=	628	mm^2

Step 5:

Check For Shear:

1. one way shear :

From Critical Xn for One Way Shear	Vu	=	129.16	KN
	ζv	=	0.28	N/mm^2
	pt	=	0.137	%
	ζc	=	0.279	N/mm^2

ζv < ζc

hence not sate

2. Two way shear :

From Critical Xn for Two Way Shear	Vu	=	857.91	KN
	ζv	=	0.58	N/mm^2
ζc= k*0.28*sqrt (fck)	ζc	=	1	N/mm^2

ζv < ζc

Hence safe in Two-way shear

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DESIGN OF COLUMNS

PROJECT NAME	**Residential Building at Nanganallur**	DOCUMENT No. 01	DATE 15.04.2024
PROJECT No. **C23117**	Column design GRID- A 1	DESIGNED **DE** CHECKED **DJ**	PAGE

1.0 Input data

Height of column	H	=	3000 mm
Shallower depth of beam	D_{bc}	=	300 mm
Depth of column	D	=	450 mm
Breadth of column	B	=	230 mm
Clear cover		=	40 mm
Diameter of bar	d	=	16 mm
No. of bars		=	6 No.s
Lateral ties diameter		=	8 mm
Effective length factor	α	=	1.0
Axial Load (Factored)	Pu	=	770 kN
Moment about major axis (Factored)	Mx	=	10 kN.m
Moment about minor axis (Factored)	My	=	12 kN.m
Characteristic strength of concrete	f_{ck}	=	25 N/mm^2
Characteristic strength of steel	f_y	=	550 N/mm^2

2.0 Design calculation

Unsupported length of column	l	=	2700 mm
Effective length of column	l_e	=	2700 mm

2.1 Slenderness Limit

Slenderness limit 60 times least lateral dimension		=	13800 mm
		With in Slenderness limit	
Slenderness ratio in major axis l_{ex} / D	=2700/450	=	6.0
	lex/D< 12, Short compression member in major axis		
Slenderness ratio in minor axis l_{ey} / B	=2700/230	=	11.7
	lex/B< 12, Short compression member in minor axis		
Additional moment for major axis	M_{ax}	=	**0 kN.m**
Additional moment for minor axis	M_{ay}	=	**0 kN.m**

2.2 Minimum Eccentricity

At major axis		=	20 mm
At minor axis		=	20 mm
Minimum moment at major axis	Mminx	=	16 kN.m
Minimum moment at minor axis	Mminy	=	15 kN.m
Calculation of Pu/ f_{ck}BD	=(770×1000)/(25×450×230)	=	0.30
Design moment + Additional moment	Mx	=	16 kN.m
Design moment + Additional moment	My	=	15 kN.m

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PROJECT NAME	**Residential Building at Nanganallur**	DOCUMENT No. 01	DATE 15.04.2024
PROJECT No. **C23117**	Column design GRID- A 1	DESIGNED **DE** CHECKED **DJ**	PAGE

2.3 Calculation Compression Reinforcement

Assume Percentage of Reinforcement		=	1.1 %
p / fck		=	0.06
Pu / fck BD	=770×1000/(25×450×230)	=	0.30
Reinforcement distributed equally on two sides			
$M_{ux1} / f_{ck} BD^2$		=	0.12
$M_{uy1} / f_{ck} DB^2$		=	0.10
Moment carrying capacity about X axis	M_{ux1}	=	139.7 kN.m
Moment carrying capacity about Y axis	M_{uy1}	=	59.5 kN.m
$P_{uz} = 0.45 f_{ck} A_c + 0.75 f_y A_{sc}$		=	1634 kN
P_u / P_{uz}			0.47
α_n			1.70
Criteria for Biaxial bending			
$(M_{ux}/M_{ux1})^{an}$ + $(M_{uy}/M_{uy1})^{an}$		=	0.12
			<1
Area of compression steel Required			1139 mm^2
Area of compression steel Provided			1206 mm^2

2.4 Transverse reinforcement

Diameter of transverse Reinforcemnt	=	8 mm
Spacing of lateral ties		
a. Least lateral dimension of column	=	230 mm
b. 16 times the smallest dia. Of longitudinal steel	=	256 mm
c. 300 mm	=	300 mm
Reqd . Spacing of ties Min. above value	=	230 mm

Provide 8 mm dia. Ties @ 150mm c/c.

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DESIGN OF PLINTH BEAM

PROPOSED RESIDENTIAL BUILDING AT NANGANALLUR

Input Data: Beam No : Plinth beam 101 Grid -A1

Breadth		B	=	230	mm
Overall Depth		D	=	450	mm
Clear Cover		d'	=	25	mm
Effective Depth		d	=	404.5	mm
		fy	=	500	N/mm^2
		fck	=	20	N/mm^2
Sagging Moments		Mu	=	11	kNm
End moments	LHS	M1	=	17	kNm
	RHS	M2	=	17	kNm
Shear at	END	Vu	=	23	kN
	K	Mu/(bd^2)	=	**0.45**	Mpa

The section is Singly Reinforced Xn

Design Calculation:

Step 1:

For Sagging moments

Mu	=	11	kNm
k = (Mu/bd^2)	=	0.292	Mpa
Ast required	=	64	mm^2
Ast min	=	158	mm^2
Choose dia of bar 12mm Nos req	=	1.4	Nos
Dia	=	12	mm
No	=	2	Nos
Ast provided	=	226	mm^2

Provide 2Y12 as Bottom Steel Reinforcement

Step 2:

For End moments ***LHS***

Mu	=	17	kNm
k = (Mu/bd^2)	=	0.452	Mpa
Ast required	=	99.3283	mm^2
Ast min	=	158	mm^2
Choose dia of bar 12mm Nos req	=	1.4	Nos
Dia	=	12	mm
No	=	2	Nos
Ast provided	=	226	mm^2

Provide 2Y12 as Top Steel Reinforcement at LHS

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Step 3:

For End moments ***RHS***

	Mu	=	17	kNm
	k = (Mu/bd²)	=	0.452	Mpa
	Ast required	=	99.3283	mm²
	Ast min	=	158	mm²
Choose dia of bar 12mm	Nos req	=	1.4	Nos
	Dia	=	12	mm
	No	=	2	Nos
	Ast provided	=	226	mm²

Provide 2Y12 as Top Steel Reinforcement at RHS

Step 4:

Top Steel @ Middle

(20% of Max.Mt)	Ast required	=	45.2	mm²
Choose dia of bar 12mm	Nos req	=	0.4	Nos
	Dia	=	12	mm
	No	=	2	Nos

Provide 2Y12 as Top Steel Reinforcement at Middle

Step 5:

Shear Reinforcement

	Vu	=	23.000	kN
	ζv	=	0.247	N/mm²
	pt	=	0.218	%
	ζc	=	0.340	N/mm²
	ζc max	=	3.578	N/mm²
			0	

If,

i.ζv <ζc mini shear , Here.,

ii.ζc <ζv >ζcmax design shear., **MIN SHEAR ENOUGH**

iii.ζv >ζcmax Increase Depth.

choose No.of Le: 2 and Choose dia of ba 8

	Asv	=	100.531	mm²
Design Shear Force	Vus	=	8.6319	kN

Spacing of shear reinforement as per

i. Mini Shear Reinf	Sv	=	475	mm
ii. Design shear-Vertical Stirrup	Sv	=	2049.28	mm
iii. Maximum spacing 0.75xd	Sv	=	303.375	mm
iv. Not greater than 300mm	Sv	=	300	mm

whichever is less

Provide 2 Legged Y8@150c/c

Step 6:

Results

Beam No	Size	Bottom steel		Top steel			Stirrups	
					at Support			
		Straight	Curtail	Middle	LHS	RHS	Ends	Middle
Plinth beam 101 G	230X450	2Y12		2Y12	2Y12	2Y12	LY8/15	LY8/15

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DESIGN OF ROOF BEAM

PROPOSED RESIDENTIAL BUILDING AT NANGANALLUR

Input Data: Beam No : Typical Roof beam B202 Grid -A1

Breadth		B	=	230	mm
Overall Depth		D	=	600	mm
Clear Cover		d'	=	25	mm
Effective Depth		d	=	554.5	mm
		fy	=	550	N/mm^2
		fck	=	25	N/mm^2
Sagging Moments		Mu	=	43	kNm
End moments	LHS	M1	=	44	kNm
	RHS	M2	=	42	kNm
Shear at	END	Vu	=	50	kN
	K	$Mu/(bd^2)$	=	**0.62**	Mpa

The section is Singly Reinforced Xn

Design Calculation:

Step 1:

For Sagging moments

	Mu	=	43	kNm
	$k = (Mu/bd^2)$	=	0.608	Mpa
	Ast required	=	167	mm^2
	Ast min	=	197	mm^2
Choose dia of bar 16mm	Nos req	=	1	Nos
	Dia	=	16	mm
	No	=	1	Nos
	Ast provided	=	201	mm^2

Provide 1Y16 as Bottom Steel Reinforcement

Step 2:

For End moments ***LHS***

	Mu	=	44	kNm
	$k = (Mu/bd^2)$	=	0.622	Mpa
	Ast required	=	170.827	mm^2
	Ast min	=	197	mm^2
Choose dia of bar 16mm	Nos req	=	1	Nos
	Dia	=	16	mm
	No	=	1	Nos
	Ast provided	=	201	mm^2

Provide 1Y16 as Top Steel Reinforcement at LHS

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PROPOSED RESIDENTIAL BUILDING AT NANGANALLUR

Step 3:

For End moments ***RHS***

	Mu	=	42	kNm
	k = (Mu/bd²)	=	0.594	Mpa
	Ast required	=	162.908	mm²
	Ast min	=	197	mm²
Choose dia of bar 16mm	Nos req	=	1	Nos
	Dia	=	16	mm
	No	=	1	Nos
	Ast provided	=	201	mm²

Provide 1Y16 as Top Steel Reinforcement at RHS

Step 4:

Top Steel @ Middle

(20% of Max.Mt)	Ast required	=	40.2	mm²
Choose dia of bar 16mm	Nos req	=	0.2	Nos
	Dia	=	16	mm
	No	=	2	Nos

Provide 2Y16 as Top Steel Reinforcement at Middle

Step 5:

Shear Reinforcement

	Vu	=	50.000	kN
	ζv	=	0.392	N/mm²
	pt	=	0.146	%
	ζc	=	0.290	N/mm²
	ζc max	=	4.000	N/mm²
If,			0	
i.ζv <ζc mini shear ,	Here.,			
ii.ζc <ζv >ζcmax design shear.,	**DESIGN SHEAR REQD**			
iii.ζv >ζcmax Increase Depth.				
choose No.of Le; 2	and		Choose dia of ba 8	
	Asv	=	100.531	mm²
Design Shear Force	Vus	=	13.0149	kN

Spacing of shear reinforement as per

i. Mini Shear Reinf	Sv	=	523	mm
ii. Design shear-Vertical Stirrup	Sv	=	2049.48	mm whichever is less
iii. Maximum spacing 0.75xd	Sv	=	415.875	mm
iv. Not greater than 300mm	Sv	=	300	mm

Provide 2 Legged Y8@150c/c

Step 6:

Results

Beam No	Size	Bottom steel		Top steel			Stirrups	
					at Support			
		Straight	Curtail	Middle	LHS	RHS	Ends	Middle
ical Roof beam B20	230X600	2Y16		2Y16	2Y16	4Y16	LY8/15	LY8/15

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DESIGN OF ROOF SLAB

PROPOSED RESIDENTIAL BUILDING AT NANGANALLUR

Reference Girds **A1,B1 ,A2, B2** **Floor : TYPICAL ROOF**

CLEAR SPANS : ONE SMALL EDGE CONTINUOUS

Shorter span c/c	B	=	**3.20**	m
Longer span c/c	L	=	**3.51**	m
Width of support	b	=	**230**	mm
Clear Cover of slab		=	**20**	mm
Slenderness Ratio Ly / Lx	ly/lx	=	**1.10**	<2

Design as two way slab

LOAD CALCULATION :

Assume the thickness of the slab	thick	=	**125**	mm
Self Weight of slab	sl.wt	=	**3.13**	KN / m ^{2}
Weathering course / Floor finishing	finish	=	**1.50**	KN / m ^{2}
Wall load	wall load	=	**0.00**	KN / m ^{2}
Live Load (Access provided)	l.l	=	**2.00**	KN / m ^{2}
Total Load	T.L	=	**6.63**	KN / m ^{2}
Factored Load	Fact.T.L	=	9.938	KN / m ^{2}

EFFECTIVE SPANS :

Shorter span: (Lx)

Clear span + effective depth	=	3.07	mm
Center to centre of supports	=	3.20	mm
Effective span	=	3.07	mm

Longer span: (Ly)

Clear span + effective depth	=	3.61	mm
Center to centre of supports	=	3.74	mm
Effective span	=	3.61	mm
Aspect Ratio Ly / Lx	=	1.18	< 2

BENDING MOMENT COEFFICIENTS:

Positive moment along Shorter dir.	+ ve Alpha -	=	0.072
Negative moment along Shorter dir.	- ve Alpha -	=	0.000
Positive moment along Longer dir.	+ ve Alpha -	=	0.056
Negative moment along Longer dir.	- ve Alpha -	=	0.000

BENDING MOMENTS:

Positive moment along Shorter dir.	M x +ve	=	6.71 KNm / m
Negative moment along Shorter dir.	M x -ve	=	0.00 KNm / m
Positive moment along Longer dir.	M y +ve	=	5.23 KNm / m

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Email: devastr@gmail.com

Negative moment along Longer dir.	M y -ve	=	0.00 KNm / m

DEPTH OF SLAB :

Compressive Stength of Concrete	fck	=	25 N /mm ^{2}
Grade of steel	fy	=	550 N /mm ^{2}
Moment of Resistance Constant	q	=	3.45
Provided Overall Depth	D	=	125 mm
Provided Effective Depth	dx	=	100 mm
	dy	=	90 mm

AREA OF STEELREINFORCEMENT:

Ast req. at midspan along x- dir.	ast +ve x	=	176 mm ^{2}
Ast req. at midspan along y- dir.	ast +ve y	=	156 mm ^{2}
Ast req. at support along x- dir.	ast -ve x	=	0 mm ^{2}
Ast req. at support along y- dir.	ast -ve y	=	0 mm ^{2}
Minimum Ast required	ast min	=	150.00 mm ^{2}

SPACING OF STEELREINFORCEMENT:

8 mm dia at midspan along x- dir.	=	286 mm c/c
8 mm dia at midspan along y- dir.	=	321 mm c/c
8 mm dia at support along x- dir.	=	335 mm c/c
8 mm dia at support along y- dir.	=	335 mm c/c

DISTRIBUTION STEEL :

	Minimum Ast required	=	150 Sq.mm
Assume	8.00 mm Diameter Spacing Required	=	335 mm c/c
Provide	8.00 mm Diameter at	=	200 mm c/c
	Ast Provided	=	251 Sq.mm

Botom	**Steel Provided**	**In Lx**	Y 8	150
		In Ly	Y 8	150
Top	**Steel Provided**	**In Lx**	Y 8	150
		In Ly	Y 8	150

CHECK FOR DEFLECTION :

	Ast Prov	=	335
	M/bd2	=	0.67
Actual Span / Effective depth Ratio		=	32
Design service stress	fs	=	192
Modification factor		=	2.00

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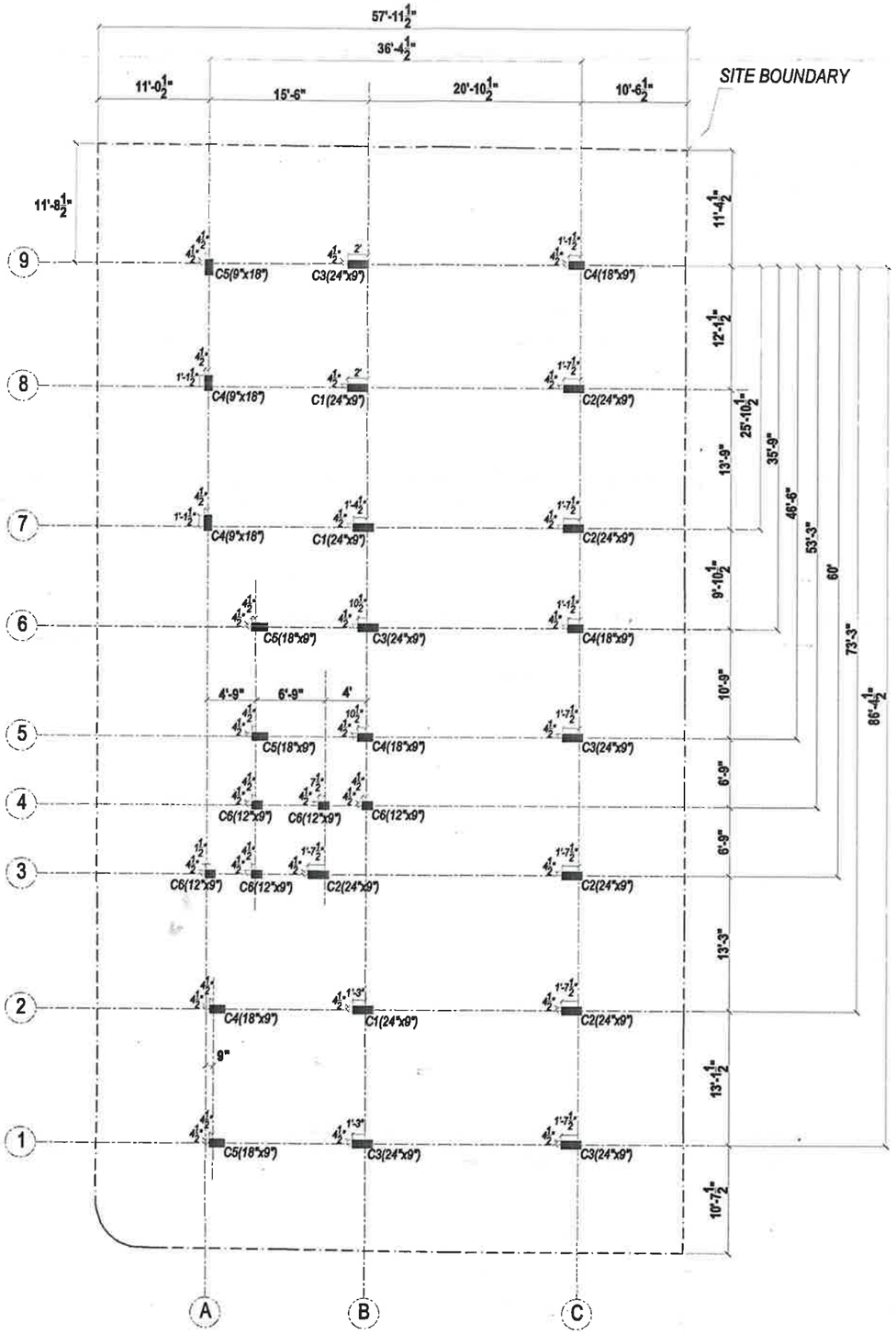
PROPOSED RESIDENTIAL BUILDING AT NANGANALLUR

Allowable Span /Effective depth Ratio = 40.00

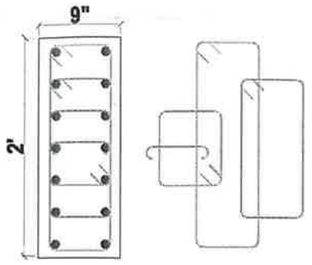
=====<<< Hence SAFE in Deflection >>>===

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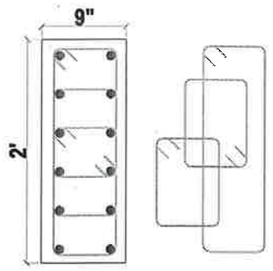
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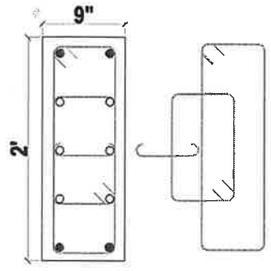
CENTERLINE & COLUMN LAYOUT



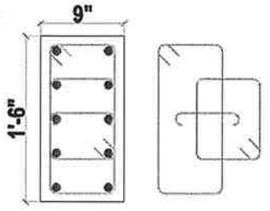
DETAIL - A



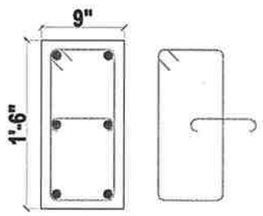
DETAIL -B



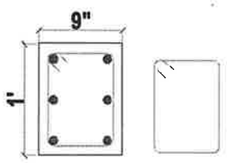
DETAIL -C



DETAIL - D



DETAIL -E



DETAIL - F

SCHEDULE OF COLUMNS

COLUMN TYPE	NOS	FOUNDATION TO FIRST FLOOR ROOF LEVEL				REMARKS
		SIZE	REINFORCEMENT	DETAILS	RINGS	
C1	3	9" x 24"	14Y20	A	Y8@6"	-
C2	5	9" x 24"	12Y20	B	Y8@6"	-
C3	5	9" x 24"	4Y20+6Y16	C	Y8@6"	-
C4	6	9" x 18"	10Y16	D	Y8@6"	-
C5	4	9" x 18"	6Y16	E	Y8@6"	-
C6	5	9" x 12"	6Y16	F	Y8@6"	-

N E S W

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4. THIS DRAWING SHOULD BE READ ALONG WITH THE RELEVANT ARCHITECTURAL DRAWINGS. IF ANY DISCREPANCY BETWEEN THIS DRAWING AND OTHER DRAWINGS SHOULD BE BROUGHT TO THE NOTICE OF STRUCTURAL ENGINEER.
5. GRADE OF CONCRETE IS M25 & GRADE OF STEEL IS Fe 550
6. CLEAR COVER FOR
   COLUMNS : 40mm(1.5")
7. DEVELOPMENT LENGTH FOR REINFORCEMENT BARS
   IN COMPRESSION : 40Ø
   IN TENSION : 50Ø
8. LAP LENGTH OF BARS : 50Ø. AT COLUMN LAPPING PROVIDE CLOSER SPACING OF TIES.
9. THIS BUILDING IS DESIGNED FOR G+5 FLOOR.

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Email: devastr@gmail.com

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA
PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
8/3 , 6 TH MAIN ROAD,
NANGANALLUR,
CHENNAI - 61.

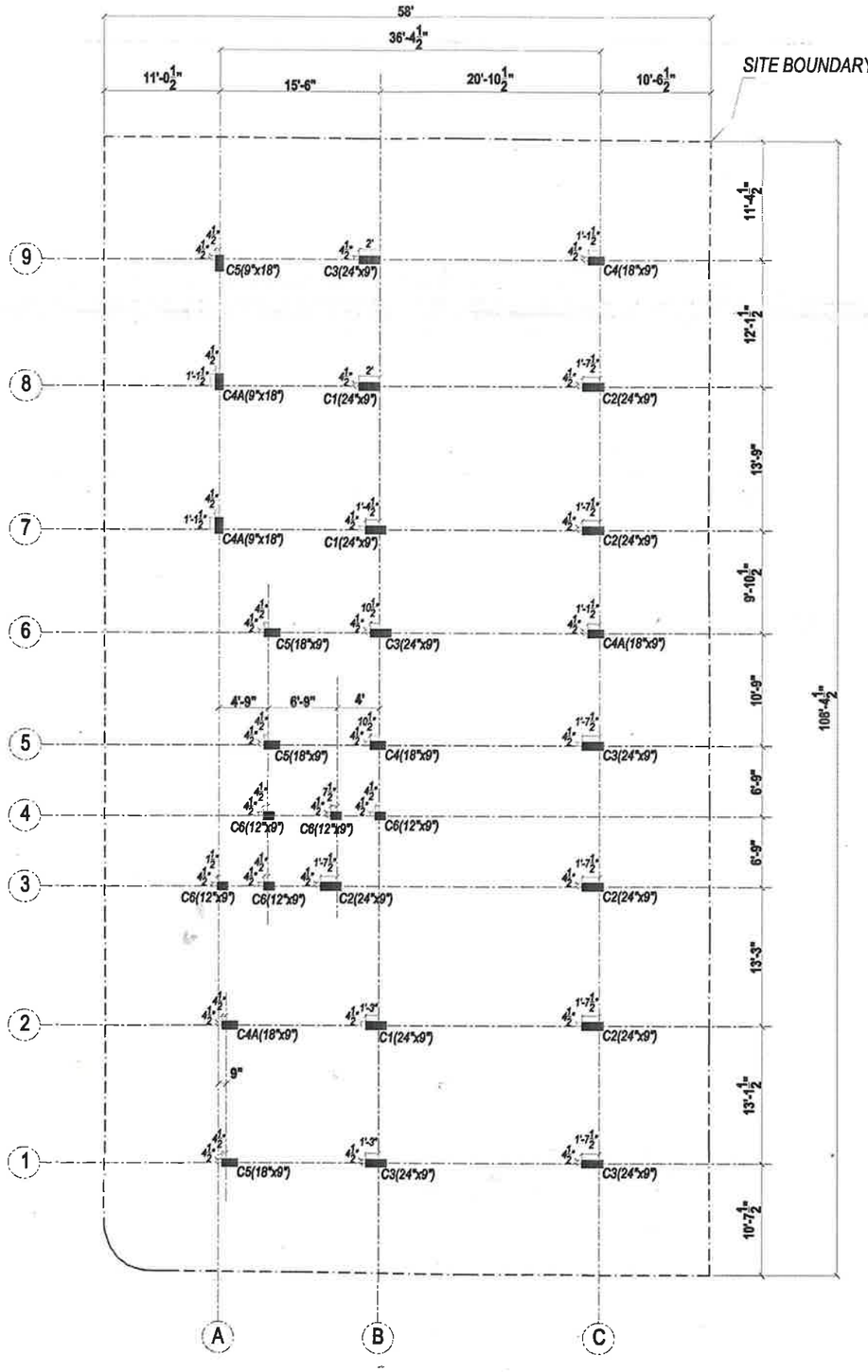
STRUCTURAL CONSULTANT

CMDA REG.NO:SE/GR-I/19/04/110
YV ENGINEERING Services
05, Muthyala reddy nagar,
Chennai -600 088,Tamilnadu , India
email: devastr@gmail.com
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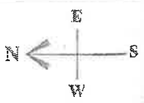
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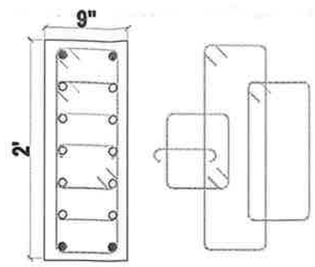
CENTERLINE, COLUMN DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-01	

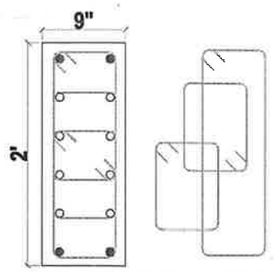


CENTERLINE & COLUMN LAYOUT

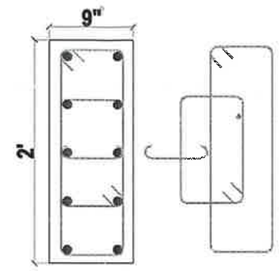




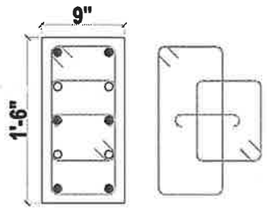
DETAIL - A



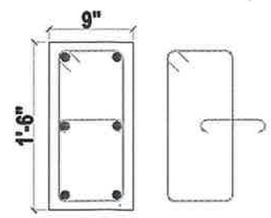
DETAIL -B



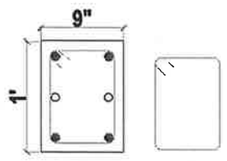
DETAIL -C



DETAIL - D



DETAIL -E



DETAIL - F

SCHEDULE OF COLUMNS

COLUMN TYPE	NOS	FIRST FLOOR ROOF LEVEL TO TERRACE LEVEL				REMARKS
		SIZE	REINFORCEMENT	DETAILS	RINGS	
C1	3	9" x 24"	4Y20+10Y16	A	Y8@6"	-
C2	5	9" x 24"	4Y20+8Y16	B	Y8@6"	-
C3	5	9" x 24"	10Y16	C	Y8@6"	-
C4	2	9" x 18"	10Y16	D	Y8@6"	-
C5	4	9" x 18"	6Y16	E	Y8@6"	-
C6	5	9" x 12"	4Y16+2Y12	F	Y8@6"	-
C4A	4	9" x 18"	6Y16+4Y12	D	Y8@6"	-

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5. GRADE OF CONCRETE IS M25 & GRADE OF STEEL IS Fe 550
6. CLEAR COVER FOR
   COLUMNS : 40mm(1.5")
7. DEVELOPMENT LENGTH FOR REINFORCEMENT BARS
   IN COMPRESSION : 40Ø
   IN TENSION : 50Ø
8. LAP LENGTH OF BARS : 50Ø. AT COLUMN LAPPING PROVIDE CLOSER SPACING OF TIES.
9. THIS BUILDING IS DESIGNED FOR G+5 FLOOR.

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GCC Regn. No: RSE101722022
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Email: devastr@gmail.com

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA
PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
8/3 , 6 TH MAIN ROAD,
NANGANALLUR,
CHENNAI - 61.

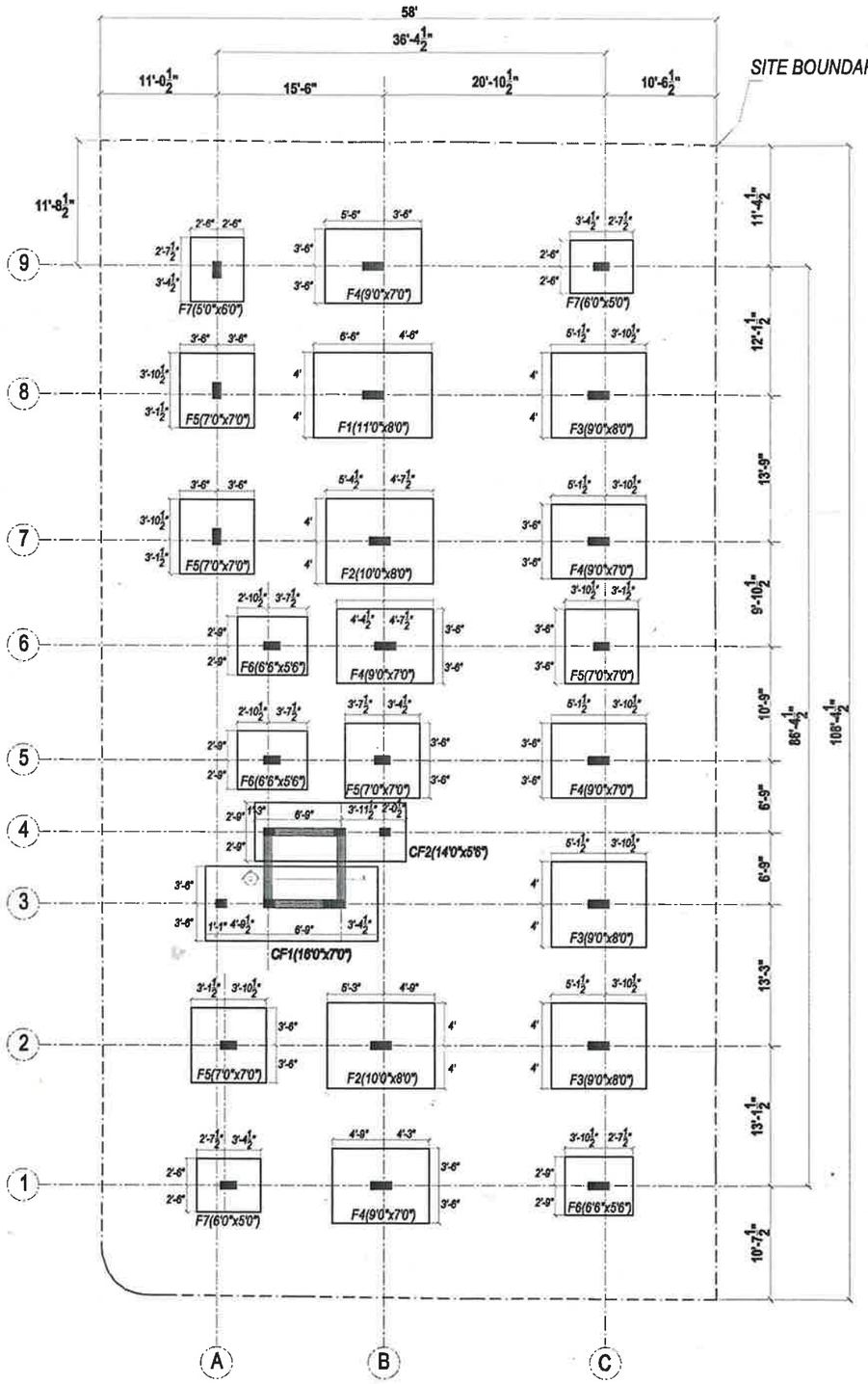
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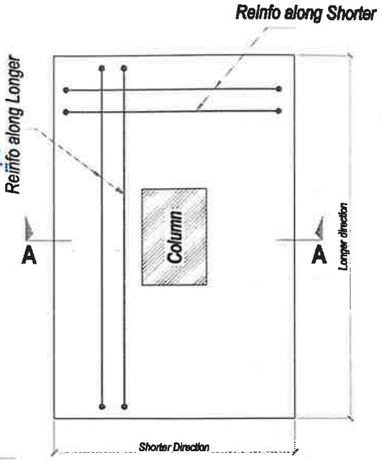
CENTERLINE, COLUMN DETAILS

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DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-01 A	

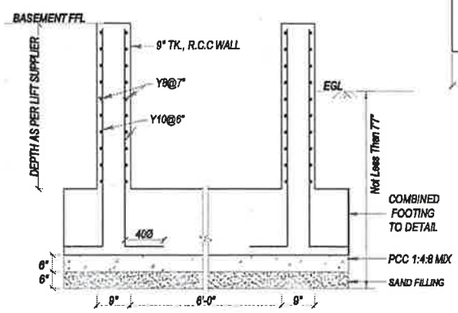


FOOTING LAYOUT

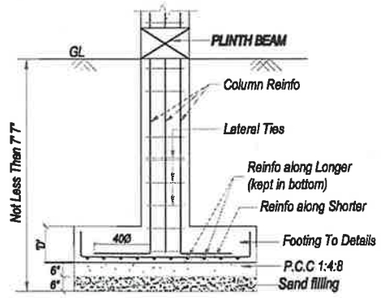
Er. M. DEVARAJ M.E., (Struct.) FMIE., AIV.
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TYPICAL PLAN OF FOOTING



SECTION - XX



SECTION - AA

SCHEDULE OF FOOTING DETAILS

FOOTING TYPE	NOS	FOOTING SIZE	DEPTH ('D')	BOTTOM STEEL		TOP STEEL	
				SHORTER	LONGER	SHORTER	LONGER
F1	1	11'0" x 8'0"	30"	Y16@5"C/C	Y16@5"C/C	Y10@10"C/C	Y10@10"C/C
F2	2	10'0" x 8'0"	30"	Y12@5"C/C	Y12@5"C/C	Y10@10"C/C	Y10@10"C/C
F3	3	9'0" x 8'0"	30"	Y12@5"C/C	Y12@5"C/C	Y10@10"C/C	Y10@10"C/C
F4	5	9'0" x 7'0"	27"	Y12@5"C/C	Y12@5"C/C	Y10@10"C/C	Y10@10"C/C
F5	5	7'0" x 7'0"	24"	Y12@5"C/C	Y12@5"C/C	Y10@10"C/C	Y10@10"C/C
F6	3	6'6" x 5'6"	21"	Y12@5"C/C	Y12@5"C/C	-	-
F7	3	6'0" x 5'0"	21"	Y10@5"C/C	Y10@5"C/C	-	-
CF1	1	16'0" x 7'0"	30"	Y12@5"C/C	Y12@5"C/C	Y12@5"C/C	Y12@5"C/C
CF2	1	14'0" x 5'6"	21"	Y10@5"C/C	Y10@5"C/C	Y10@5"C/C	Y10@5"C/C

N E S W

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5. GRADE OF CONCRETE IS M25
6. GRADE OF STEEL IS Fe 550
7. CLEAR COVER FOR
   COLUMNS : 40mm(1.5")
   FOOTINGS : 50mm(2") (BOTTOM COVER)
   : 75mm(3") (SIDE COVER)
8. LAP LENGTH OF BARS : 50Ø. AT COLUMN LAPPING PROVIDE CLOSER SPACING OF TIES.
9. THIS BUILDING IS DESIGNED FOR G +5 FLOOR.
10. SBC CONSIDERED AS PER SOIL REPORT 255 kN / Sq.m

	REVISIONS / DETAILS	INITIALS

PROJECT

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PROPOSED RESIDENTIAL FLATS
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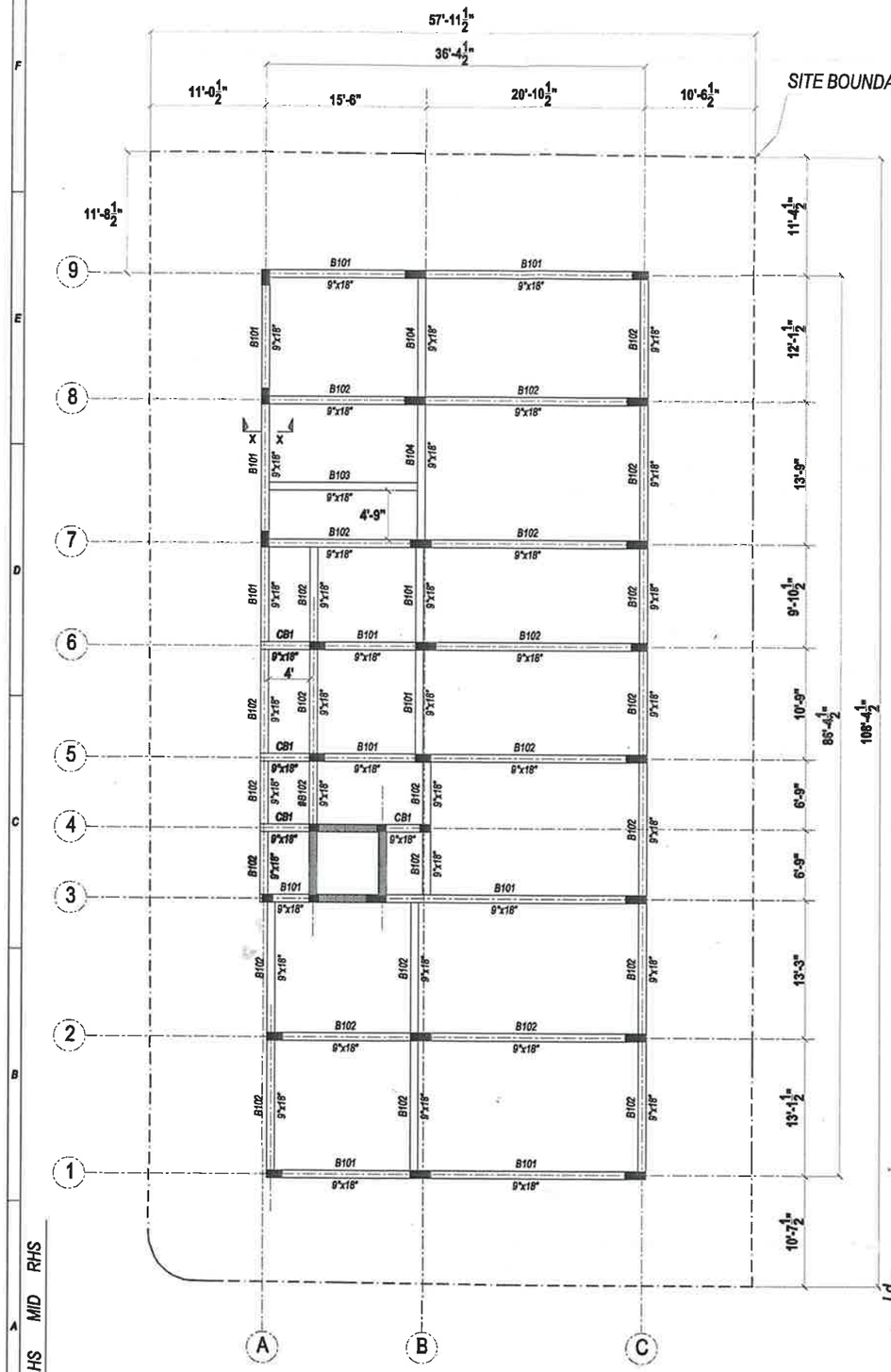
STRUCTURAL CONSULTANT

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YV ENGINEERING Services
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Chennai -600 088,Tamilnadu , India
email: devastr@gmail.com
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TITLE

FOOTING LAYOUT & DETAILS

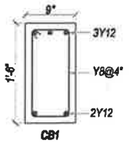
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DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117		DRAWING NO : ST-02

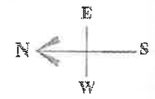


PLINTH BEAM LAYOUT

NOTES:

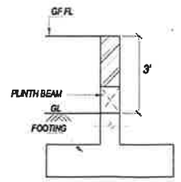
 # - LEAVE DOWELS FOR STAIRS



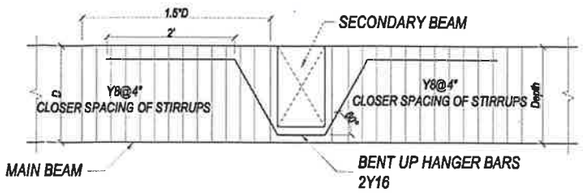


SCHEDULE OF PLINTH BEAM

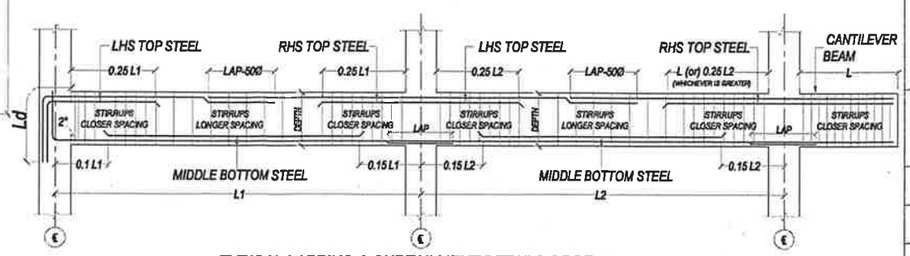
PLINTH BEAM	SECTION @ LHS	SECTION @ MID SPAN	SECTION @ RHS
B101	9" 3Y12 1'-6" Y8@6" 2Y12	9" 2Y12 1'-6" Y8@9" 2Y12	9" 3Y12 1'-6" Y8@6" 2Y12
B102	9" 2Y12 1'-6" Y8@6" 2Y12	9" 2Y12 1'-6" Y8@9" 2Y12	9" 2Y12 1'-6" Y8@6" 2Y12
B103	9" 2Y12 1'-6" Y8@6" 2Y12	9" 2Y12 1'-6" Y8@9" 3Y12	9" 2Y12 1'-6" Y8@6" 2Y12
B104	9" 3Y12 1'-6" Y8@6" 2Y12	9" 2Y12 1'-6" Y8@9" 3Y12	9" 3Y12 1'-6" Y8@6" 2Y12



TYPICAL SECTION- XX



TYPICAL HANGER BAR DETAILS



TYPICAL LAPPING & CURTAILMENT DETAILS OF BEAM

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5. THIS DRAWING SHOULD BE READ ALONG WITH THE RELEVANT ARCHITECTURAL DRAWINGS. IF ANY DISCREPANCY BETWEEN THIS DRAWING AND OTHER DRAWINGS SHOULD BE BROUGHT TO THE NOTICE OF STRUCTURAL ENGINEER.
6. GRADE OF CONCRETE IS M25
7. GRADE OF STEEL IS **Fe550**
8. CLEAR COVER FOR
   BEAMS : 25mm(1")
   COLUMNS : 40mm(1.5")
9. DEVELOPMENT LENGTH FOR REINFORCEMENT BARS
   IN COMPRESSION : 40Ø
   IN TENSION : 50Ø
10. LAP LENGTH OF BARS : 50Ø. AT COLUMN LAPPING PROVIDE CLOSER SPACING OF TIES.
11. NO LAPPING SHALL BE ALLOWED IN
    TOP STEEL OF CANTILEVER BEAMS
    TOP STEEL AT CONTINUOUS SUPPORT
    BOTTOM STEEL AT MID SPAN
12. LHS - LEFT HAND SIDE SUPPORT
    RHS - RIGHT HAND SIDE SUPPORT

Er. M. DEVARAJ M.E., (Struct.) FIE., AIV.
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GCC Regn. No: RSE101722022
Mob: 94898 85229 / 86109 47148
Email: devastr@gmail.com

REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA

PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
8/3 , 6 TH MAIN ROAD,
NANGANALLUR,
CHENNAI - 61.

STRUCTURAL CONSULTANT

CMDA REG.NO:SE/GR-I/19/04/110
YV ENGINEERING Services
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Chennai -600 088,Tamilnadu , India
email: devastr@gmail.com
Gsm: +91 8610947148

TITLE

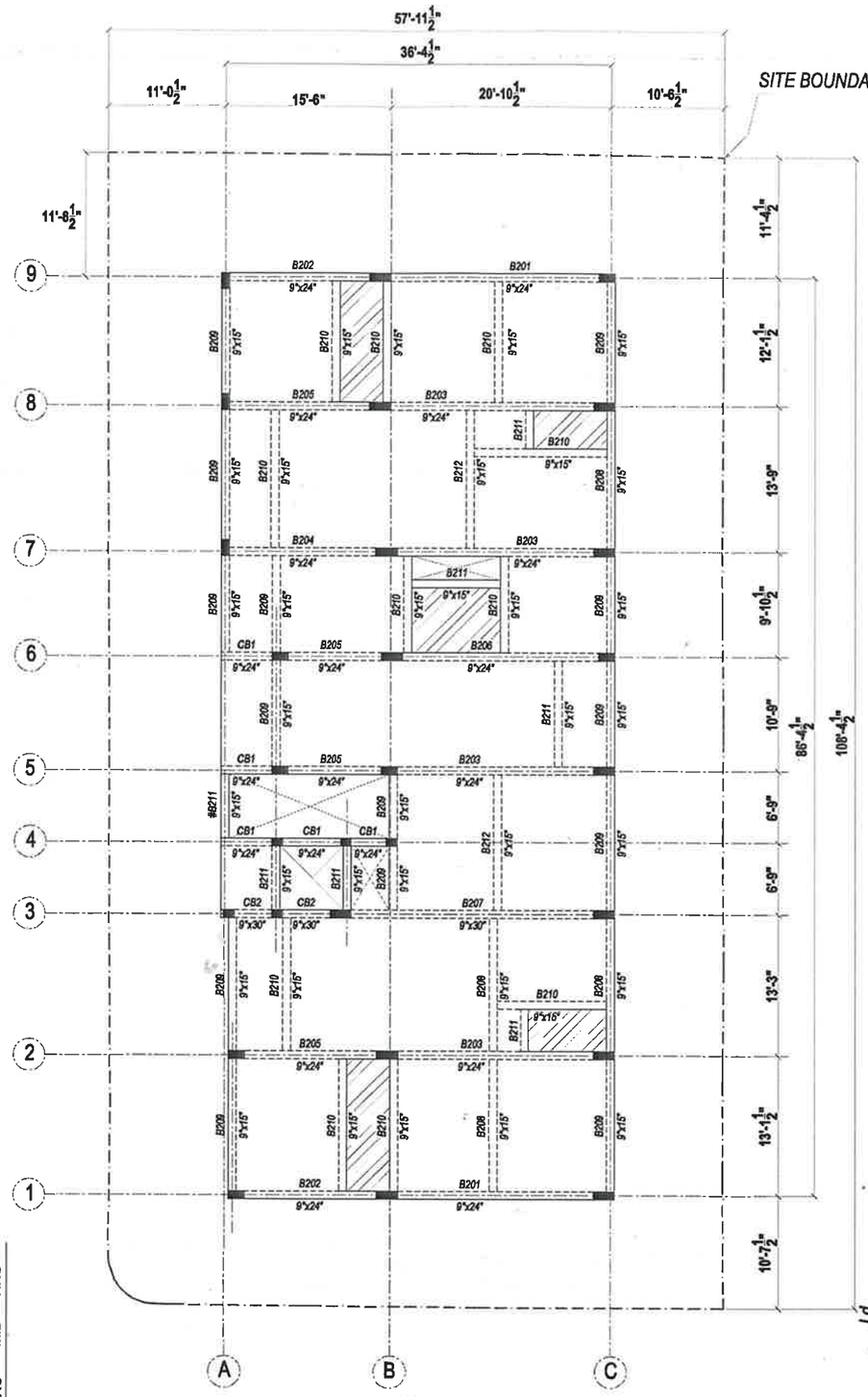
PLINTH BEAM LAYOUT & DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-03	

NOTES:

\# - LEAVE DOWELS FOR STAIRS

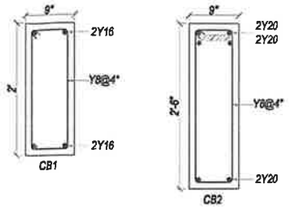
- SLAB SUNKEN BY 10"

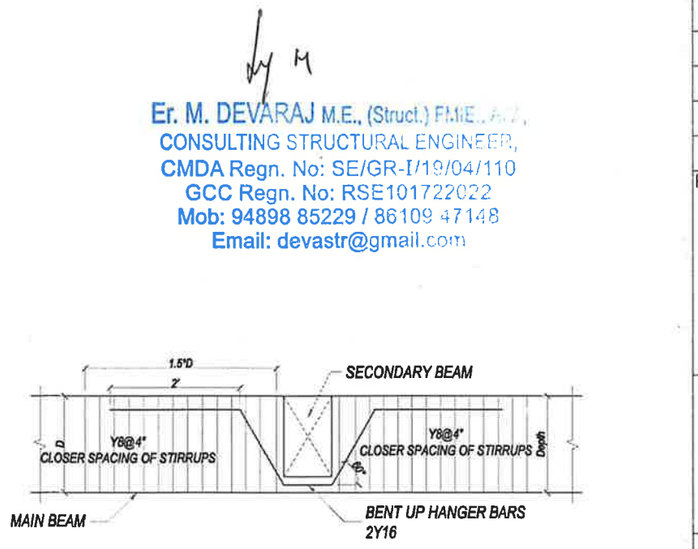


LHS MID RHS

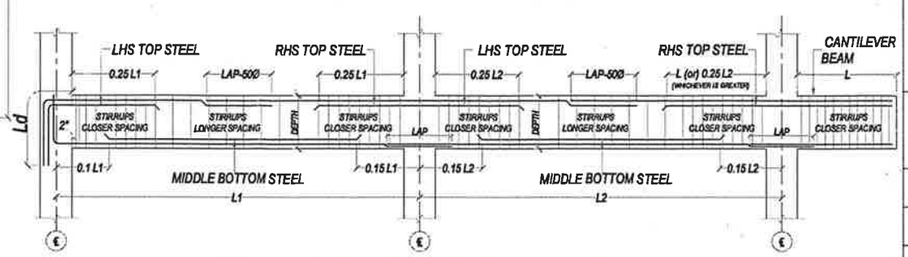
SUPPORT DESTINATION

GROUND FLOOR ROOF BEAM LAYOUT





TYPICAL HANGER BAR DETAILS



TYPICAL LAPPING & CURTAILMENT DETAILS OF BEAM

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6. GRADE OF CONCRETE IS M25
7. GRADE OF STEEL IS Fe550
8. CLEAR COVER FOR
   BEAMS : 25mm(1")
   COLUMNS : 40mm(1.5")
9. DEVELOPMENT LENGTH FOR REINFORCEMENT BARS
   IN COMPRESSION : 40Ø
   IN TENSION : 50Ø
10. LAP LENGTH OF BARS : 50Ø. AT COLUMN LAPPING PROVIDE CLOSER SPACING OF TIES.
11. NO LAPPING SHALL BE ALLOWED IN
    TOP STEEL OF CANTILEVER BEAMS
    TOP STEEL AT CONTINUOUS SUPPORT
    BOTTOM STEEL AT MID SPAN
12. LHS - LEFT HAND SIDE SUPPORT
    RHS - RIGHT HAND SIDE SUPPORT

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA

PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
8/3 , 6 TH MAIN ROAD,
NANGANALLUR,
CHENNAI - 61.

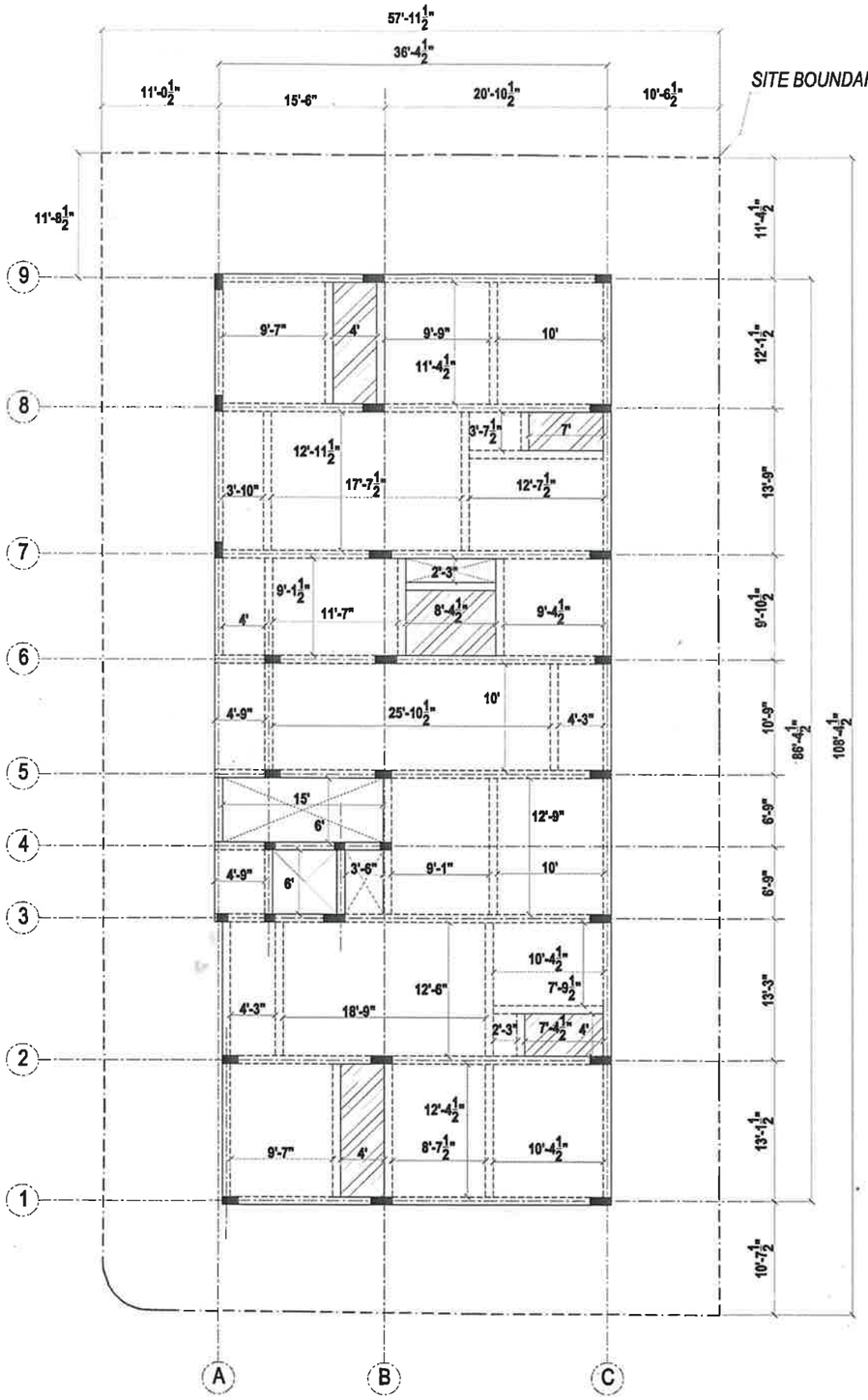
STRUCTURAL CONSULTANT

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TITLE

GROUND FLOOR ROOF BEAM LAYOUT & DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-04	



GROUND FLOOR ROOF BEAM LAYOUT

N E S W

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8. CLEAR COVER FOR
   BEAMS : 25mm(1")
   COLUMNS : 40mm(1.5")
9. DEVELOPMENT LENGTH FOR REINFORCEMENT BARS
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    TOP STEEL AT CONTINUOUS SUPPORT
    BOTTOM STEEL AT MID SPAN
12. LHS - LEFT HAND SIDE SUPPORT
    RHS - RIGHT HAND SIDE SUPPORT

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA
PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
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GCC Regn. No: RSE101722022
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Email: devastr@gmail...

TITLE

GROUND FLOOR ROOF BEAM DIMENSION DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-04 A	

SCHEDULE OF ROOF BEAM

ROOF BEAM	SECTION @ LHS	SECTION @ MID SPAN	SECTION @ RHS
B201	9" 2Y16 2Y16 Y8@6" 2' 2Y16	9" 2Y16 Y8@9" 2' 3Y16	9" 2Y16 2Y16 Y8@6" 2' 2Y16
B202	9" 2Y16 Y8@6" 2' 2Y16	9" 2Y16 Y8@9" 2' 2Y16	9" 2Y16 2Y16 Y8@6" 2' 2Y16
B203	9" 2Y20 2Y20 Y8@5" 2' 2Y20	9" 2Y20 Y8@9" 2' 2Y20 2Y20	9" 2Y20 2Y20 Y8@5" 2' 2Y20
B204	9" 2Y16 Y8@6" 2' 2Y20	9" 2Y16 Y8@9" 2' 2Y20	9" 2Y20 2Y20 Y8@6" 2' 2Y20
B205	9" 2Y16 Y8@6" 2' 2Y16	9" 2Y16 Y8@9" 2' 2Y16	9" 2Y20 2Y20 Y8@6" 2' 2Y16
B206	9" 2Y20 2Y20 Y8@5" 2' 2Y16	9" 2Y20 Y8@9" 2' 2Y16 2Y16	9" 2Y20 2Y20 Y8@5" 2' 2Y16
B207	9" 2Y20 2Y20 Y8@4" 2'-6" 2Y20	9" 2Y20 Y8@8" 2'-6" 2Y20 2Y20	9" 2Y20 2Y20 Y8@4" 2'-6" 2Y20

ROOF BEAM	SECTION @ LHS	SECTION @ MID SPAN	SECTION @ RHS
B208	9" 3Y16 1'-3" Y8@6" 2Y12	9" 2Y16 1'-3" Y8@9" 3Y12	9" 3Y16 1'-3" Y8@6" 2Y12
B209	9" 2Y16 1'-3" Y8@6" 2Y12	9" 2Y16 1'-3" Y8@9" 2Y12	9" 2Y16 1'-3" Y8@6" 2Y12
B210	9" 2Y16 1'-3" Y8@6" 2Y16	9" 2Y16 1'-3" Y8@9" 2Y16	9" 2Y16 1'-3" Y8@6" 2Y16
B211	9" 2Y12 1'-3" Y8@6" 2Y12	9" 2Y12 1'-3" Y8@9" 2Y12	9" 2Y12 1'-3" Y8@6" 2Y12
B212	9" 3Y16 1'-3" Y8@6" 2Y16	9" 2Y16 1'-3" Y8@9" 3Y16	9" 3Y16 1'-3" Y8@6" 2Y16

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6. GRADE OF CONCRETE IS M25
7. GRADE OF STEEL IS Fe550
8. CLEAR COVER FOR
   BEAMS : 25mm(1")
   COLUMNS : 40mm(1.5")
9. DEVELOPMENT LENGTH FOR REINFORCEMENT BARS
   IN COMPRESSION : 40Ø
   IN TENSION : 50Ø
10. LAP LENGTH OF BARS : 50Ø. AT COLUMN LAPPING PROVIDE CLOSER SPACING OF TIES.
11. NO LAPPING SHALL BE ALLOWED IN
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    TOP STEEL AT CONTINUOUS SUPPORT
    BOTTOM STEEL AT MID SPAN
12. LHS - LEFT HAND SIDE SUPPORT
    RHS - RIGHT HAND SIDE SUPPORT

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA
PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
8/3 , 6 TH MAIN ROAD,
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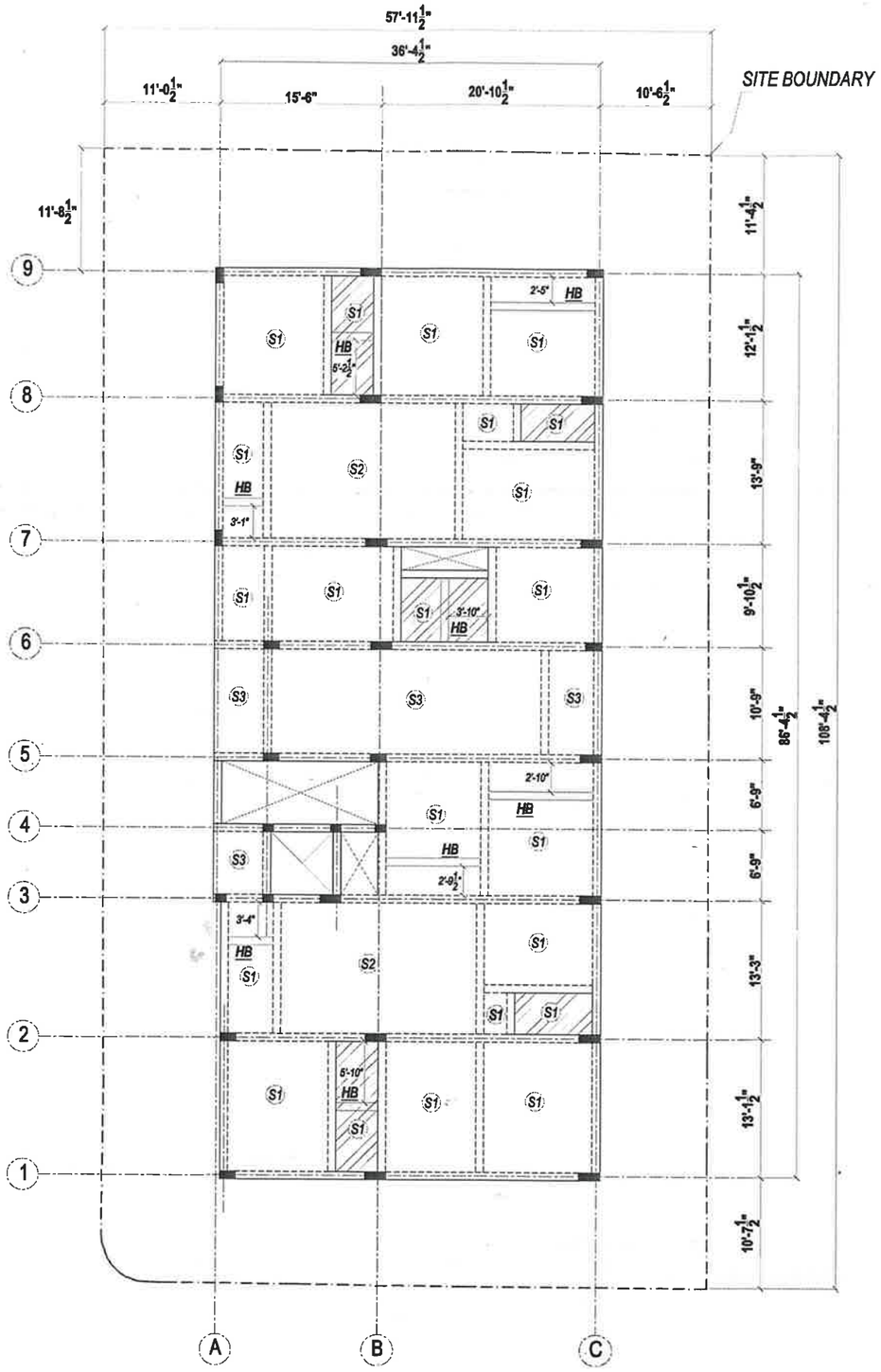
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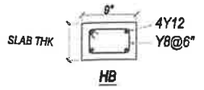
TITLE

GROUND FLOOR ROOF BEAM DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-05	



GROUND FLOOR ROOF SLAB LAYOUT



1.HB PROVIDED $4\frac{1}{2}$" WALL REST ON SLAB.

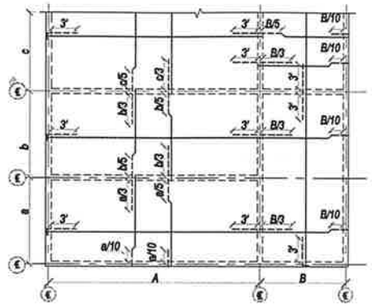
2.MAKESURE CENTRE OF $4\frac{1}{2}$"WALL & CENTRE OF BEAM COINCIDE.

NOTES:

a. ———— BOTTOM BAR

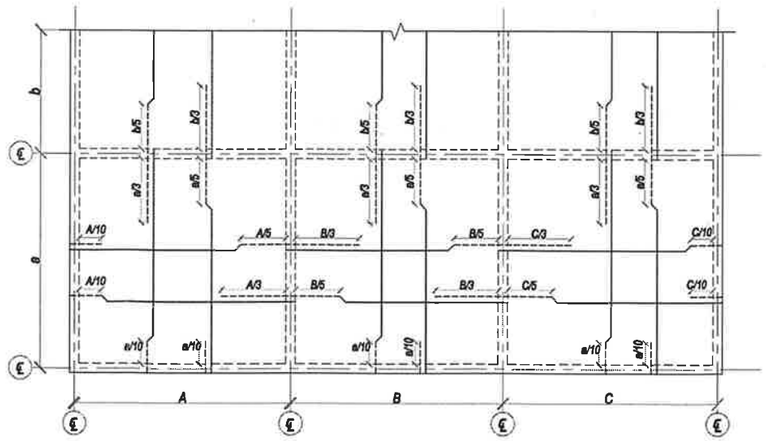
b. - - - - - - - - - - TOP BAR

c. PROVIDED Y8@8" FOR DISTRIBUTION BARS,



PLAN

TYPICAL ONE WAY SLAB REINFORCEMENT DETAILING

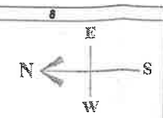


PLAN

TYPICAL TWO WAY SLAB REINFORCEMENT DETAILING

SCHEDULE OF SLAB

SLAB NO.	THICKNESS	SHORTER SPAN REINFORCEMENT	LONGER SPAN REINFORCEMENT	REMARKS
S1	5"	Y8@6" C/C	Y8@6" C/C	TWO WAY SLAB
S2	5"	Y10@4" C/C	Y10@6" C/C	TWO WAY SLAB
S3	5"	Y10@4" C/C	Y8@8" C/C	ONE WAY SLAB



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5. GRADE OF CONCRETE IS M25 & GRADE OF STEEL IS Fe 550
6. CLEAR COVER FOR
   BEAMS : 25mm(1")
   SLABS : 20mm(.75")

Er. M. DEVARAJ M.E., (Struct.) FMIE., AIV.,
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Email: devastr@gmail.com

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA
PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
8/3 , 6 TH MAIN ROAD,
NANGANALLUR,
CHENNAI - 61.

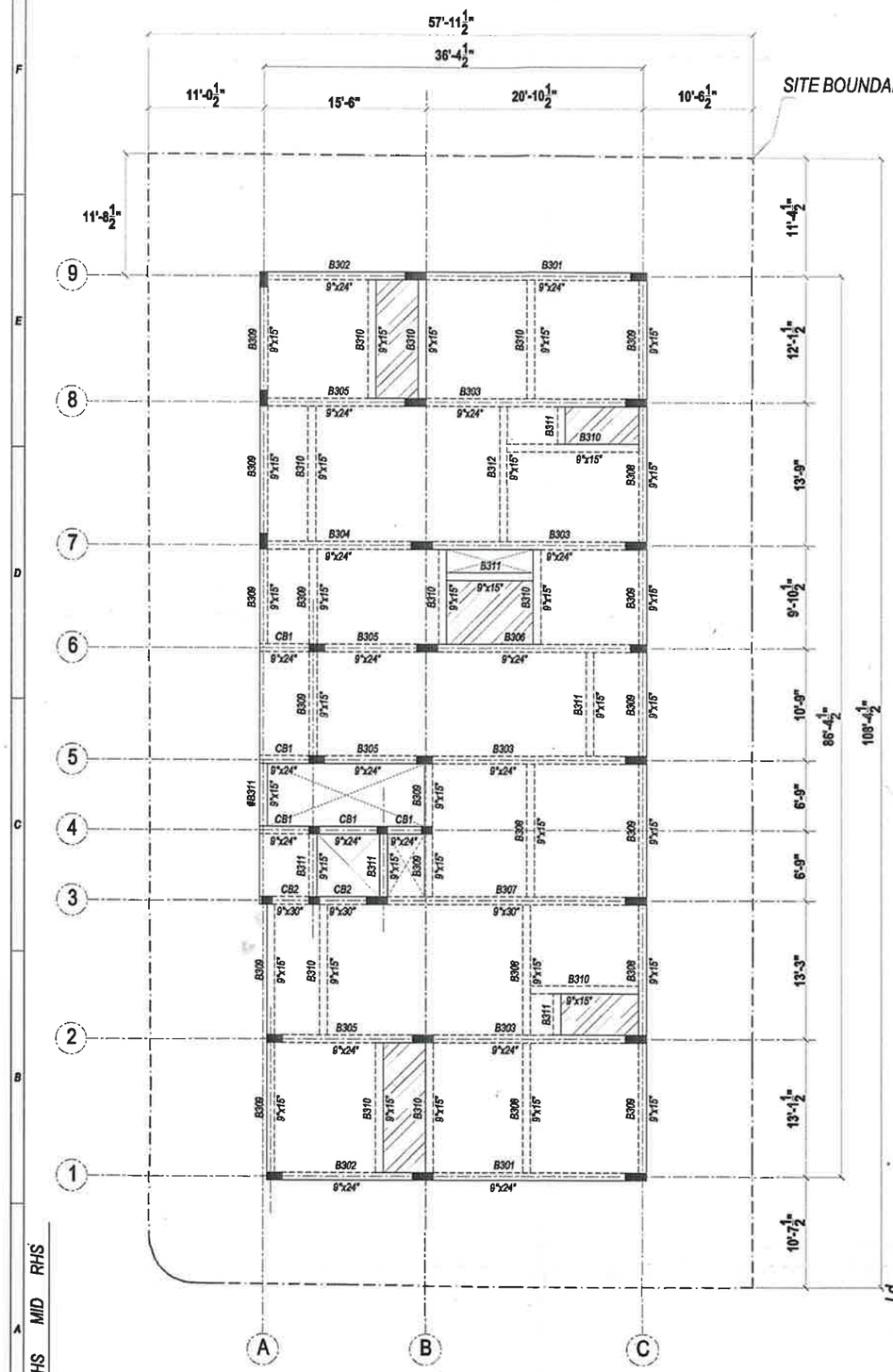
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Chennai -600 088,Tamilnadu , India
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Gsm: +91 8610947148

TITLE

GROUND FLOOR ROOF SLAB LAYOUT & DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-06	



LHS MID RHS

LHS MID RHS

SUPPORT DESTINATION

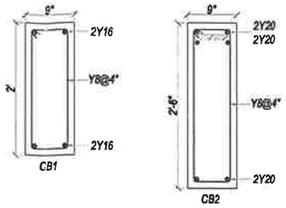
TYPICAL FLOOR ROOF BEAM LAYOUT

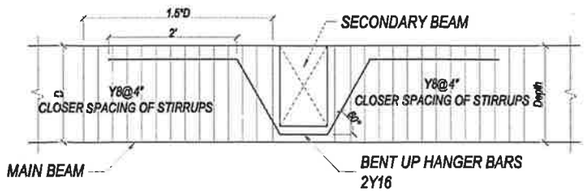
(FIRST, SECOND, THIRD & FOURTH FLOOR)

NOTES:

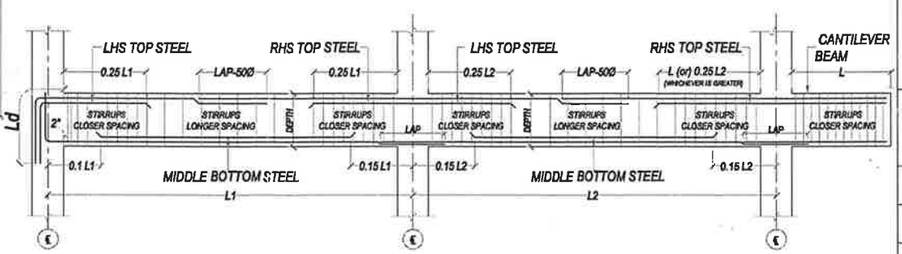
\# - LEAVE DOWELS FOR STAIRS

▨ - SLAB SUNKEN BY 10"





TYPICAL HANGER BAR DETAILS



TYPICAL LAPPING & CURTAILMENT DETAILS OF BEAM

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6. GRADE OF CONCRETE IS M25
7. GRADE OF STEEL IS Fe550
8. CLEAR COVER FOR
   BEAMS : 25mm(1")
   COLUMNS : 40mm(1.5")
9. DEVELOPMENT LENGTH FOR REINFORCEMENT BARS
   IN COMPRESSION : 40Ø
   IN TENSION : 50Ø
10. LAP LENGTH OF BARS : 50Ø. AT COLUMN LAPPING PROVIDE CLOSER SPACING OF TIES.
11. NO LAPPING SHALL BE ALLOWED IN
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    TOP STEEL AT CONTINUOUS SUPPORT
    BOTTOM STEEL AT MID SPAN
12. LHS - LEFT HAND SIDE SUPPORT
    RHS - RIGHT HAND SIDE SUPPORT

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA

PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
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email: devastr@gmail.com
Gsm: +91 8610947148

TITLE

TYPICAL FLOOR ROOF BEAM LAYOUT & DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-07	

SCHEDULE OF ROOF BEAM

ROOF BEAM	SECTION @ LHS	SECTION @ MID SPAN	SECTION @ RHS
B301	9" 2Y16 2Y16 Y8@6" 2Y16 2'-0"	9" 2Y16 Y8@9" 3Y16 2'-0"	9" 2Y16 2Y16 Y8@6" 2Y16 2'-0"
B302	9" 2Y16 Y8@6" 2Y16 2'-0"	9" 2Y16 Y8@9" 2Y16 2'-0"	9" 2Y16 2Y16 Y8@6" 2Y16 2'-0"
B303	9" 2Y20 2Y20 Y8@5" 2Y20 2'-0"	9" 2Y20 Y8@9" 2Y20 2Y20 2'-0"	9" 2Y20 2Y20 Y8@5" 2Y20 2'-0"
B304	9" 2Y16 Y8@6" 2Y20 2'-0"	9" 2Y16 Y8@9" 2Y20 2'-0"	9" 2Y20 2Y20 Y8@6" 2Y20 2'-0"
B305	9" 2Y16 Y8@6" 2Y16 2'-0"	9" 2Y16 Y8@9" 2Y16 2'-0"	9" 2Y20 2Y20 Y8@6" 2Y16 2'-0"
B306	9" 2Y20 2Y20 Y8@5" 2Y16 2'-0"	9" 2Y20 Y8@9" 2Y16 2Y16 2'-0"	9" 2Y20 2Y20 Y8@5" 2Y16 2'-0"
B307	9" 2Y20 2Y20 Y8@4" 2Y20 2'-6"	9" 2Y20 Y8@8" 2Y20 2Y20 2'-6"	9" 2Y20 2Y20 Y8@4" 2Y20 2'-6"

ROOF BEAM	SECTION @ LHS	SECTION @ MID SPAN	SECTION @ RHS
B308	9" 3Y16 Y8@6" 2Y12 1'-3"	9" 2Y16 Y8@9" 3Y12 1'-3"	9" 3Y16 Y8@6" 2Y12 1'-3"
B309	9" 2Y16 Y8@6" 2Y12 1'-3"	9" 2Y16 Y8@9" 2Y12 1'-3"	9" 2Y16 Y8@6" 2Y12 1'-3"
B310	9" 2Y16 Y8@6" 2Y16 1'-3"	9" 2Y16 Y8@9" 2Y16 1'-3"	9" 2Y16 Y8@6" 2Y16 1'-3"
B311	9" 2Y12 Y8@6" 2Y12 1'-3"	9" 2Y12 Y8@9" 2Y12 1'-3"	9" 2Y12 Y8@6" 2Y12 1'-3"
B312	9" 3Y16 Y8@6" 2Y16 1'-3"	9" 2Y16 Y8@9" 3Y16 1'-3"	9" 3Y16 Y8@6" 2Y16 1'-3"

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6. GRADE OF CONCRETE IS M25
7. GRADE OF STEEL IS Fe550
8. CLEAR COVER FOR
   BEAMS : 25mm(1")
   COLUMNS : 40mm(1.5")
9. DEVELOPMENT LENGTH FOR REINFORCEMENT BARS
   IN COMPRESSION : 40Ø
   IN TENSION : 50Ø
10. LAP LENGTH OF BARS : 50Ø. AT COLUMN LAPPING PROVIDE CLOSER SPACING OF TIES.
11. NO LAPPING SHALL BE ALLOWED IN
    TOP STEEL OF CANTILEVER BEAMS
    TOP STEEL AT CONTINUOUS SUPPORT
    BOTTOM STEEL AT MID SPAN
12. LHS - LEFT HAND SIDE SUPPORT
    RHS - RIGHT HAND SIDE SUPPORT

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA
PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
8/3 , 6 TH MAIN ROAD,
NANGANALLUR,
CHENNAI - 61.

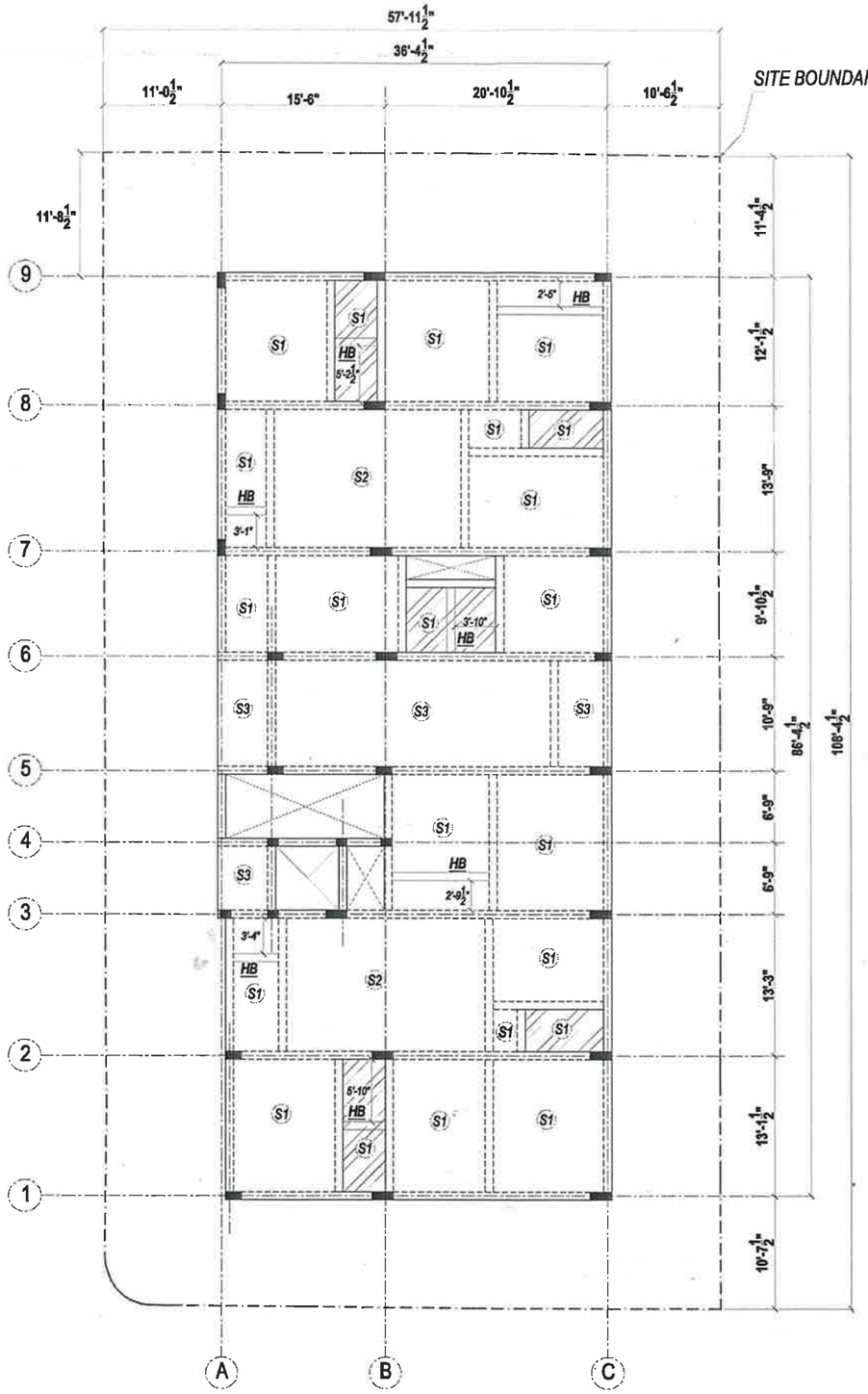
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Chennai -600 088,Tamilnadu , India
email: devastr@gmail.com
Gsm: +91 8610947148

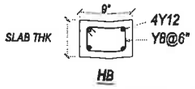
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TYPICAL FLOOR ROOF BEAM DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117		DRAWING NO : ST-08



TYPICAL FLOOR ROOF SLAB LAYOUT
(FIRST,SECOND,THIRD & FOURTH FLOOR)



1.HB PROVIDED $4\frac{1}{2}$" WALL REST ON SLAB.

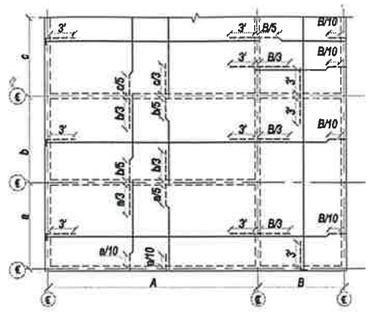
2.MAKESURE CENTRE OF $4\frac{1}{2}$"WALL & CENTRE OF BEAM COINCIDE.

NOTES:

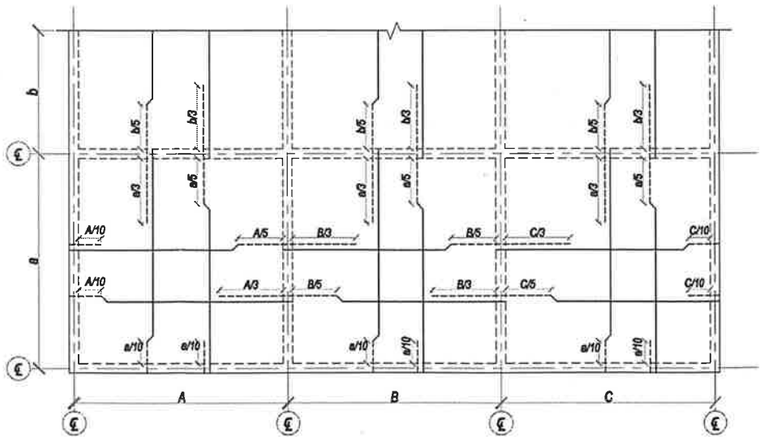
a. ———— BOTTOM BAR

b. - - - - - - - - - - TOP BAR

c. PROVIDED Y8@8" FOR DISTRIBUTION BARS,



PLAN
TYPICAL ONE WAY SLAB REINFORCEMENT DETAILING



PLAN
TYPICAL TWO WAY SLAB REINFORCEMENT DETAILING

SCHEDULE OF SLAB

SLAB NO.	THICKNESS	SHORTER SPAN REINFORCEMENT	LONGER SPAN REINFORCEMENT	REMARKS
S1	5"	Y8@6" C/C	Y8@6" C/C	TWO WAY SLAB
S2	5"	Y10@4" C/C	Y10@6" C/C	TWO WAY SLAB
S3	5"	Y10@4" C/C	Y8@8" C/C	ONE WAY SLAB

N E S W

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5. GRADE OF CONCRETE IS M25 & GRADE OF STEEL IS Fe 550
6. CLEAR COVER FOR
   BEAMS : 25mm(1")
   SLABS : 20mm(.75")

Er. M. DEVARAJ M.E., (Struct.) FIE., AIV.
CONSULTING STRUCTURAL ENGINEER
CMDA Regn. No: SE/GR-I/19/04/1
GCC Regn. No: RSE101722022
Mob: 94898 85229 / 86109 47148
Email: devastr@gmail.com

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA
PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
8/3 , 6 TH MAIN ROAD,
NANGANALLUR,
CHENNAI - 61.

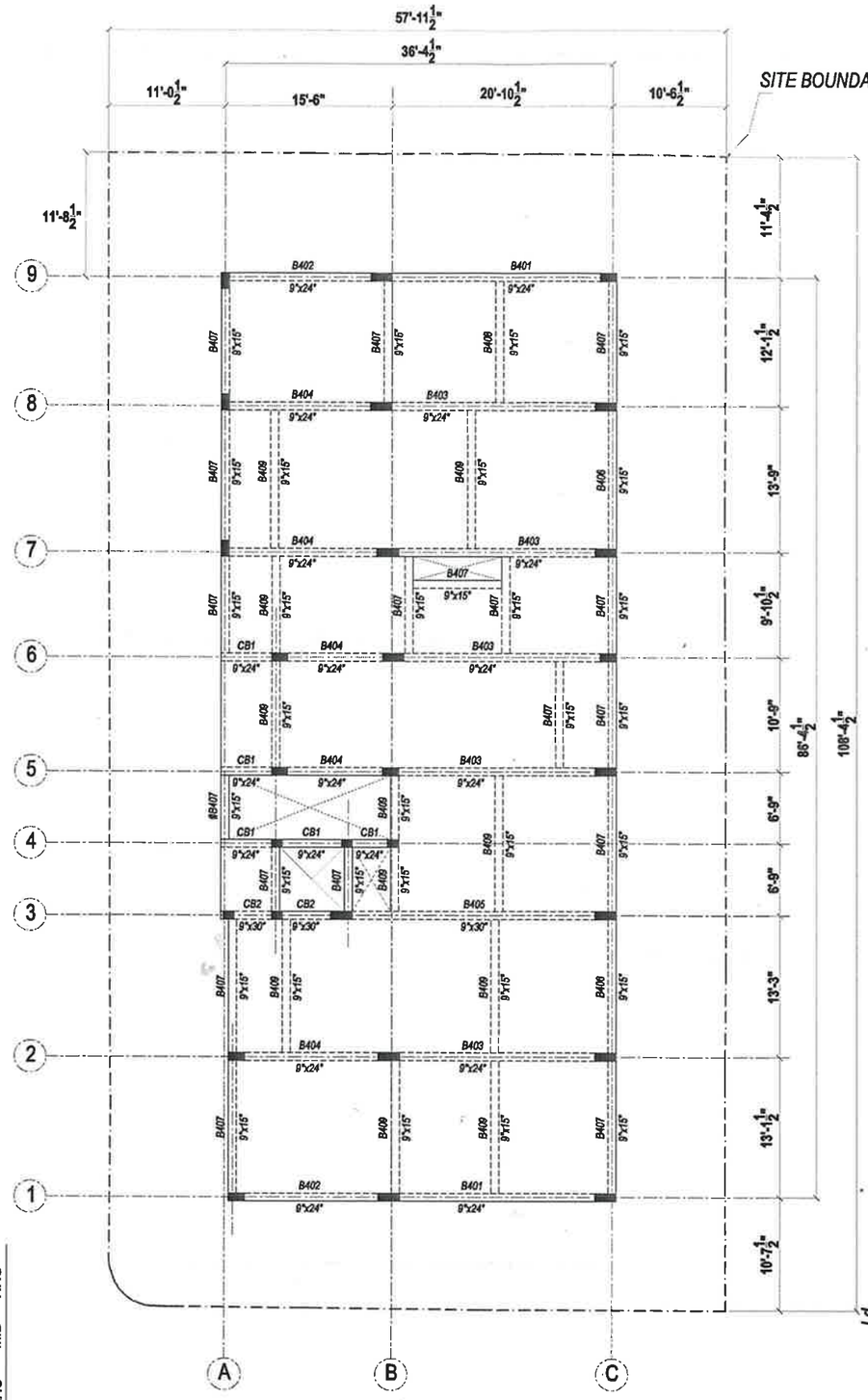
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Chennai -600 088.Tamilnadu , India
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TITLE

TYPICAL FLOOR ROOF SLAB LAYOUT & DETAILS

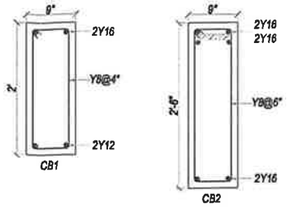
DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-09	

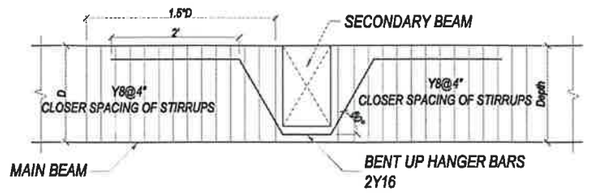


FIFTH FLOOR ROOF BEAM LAYOUT

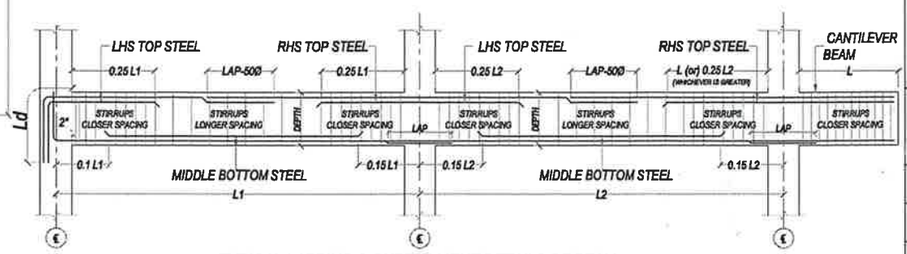
NOTES:

 # - LEAVE DOWELS FOR STAIRS





TYPICAL HANGER BAR DETAILS



TYPICAL LAPPING & CURTAILMENT DETAILS OF BEAM

Er. M. DEVARAJ M.E., (Struct.) FMIE., A. . .
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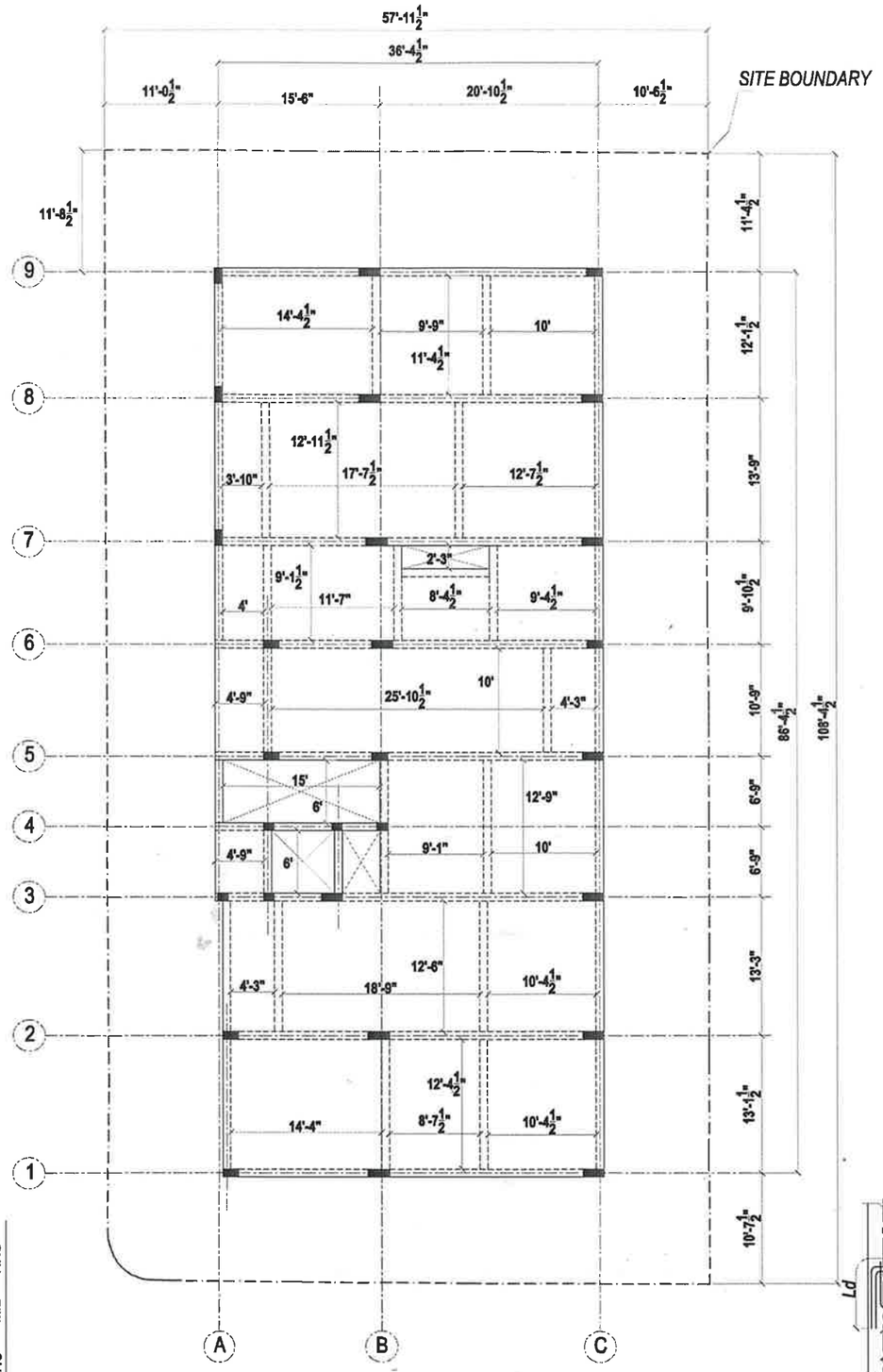
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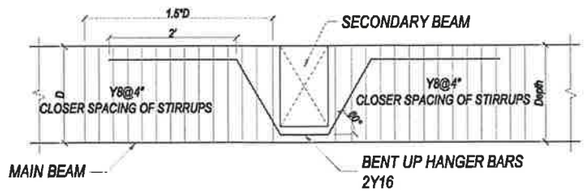
TITLE

FIFTH FLOOR ROOF BEAM LAYOUT & DETAILS

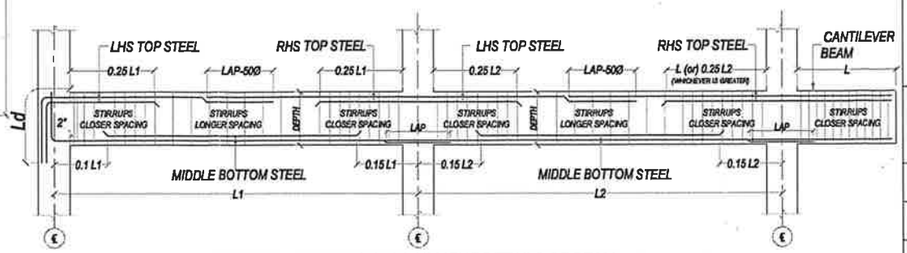
DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-10	



FIFTH FLOOR ROOF BEAM LAYOUT



TYPICAL HANGER BAR DETAILS



TYPICAL LAPPING & CURTAILMENT DETAILS OF BEAM

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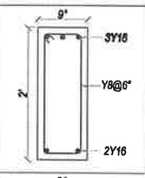
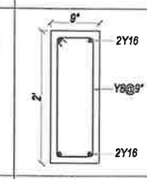
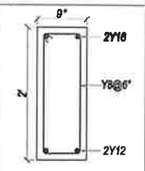
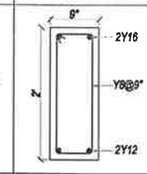
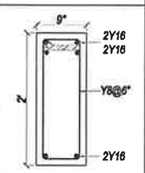
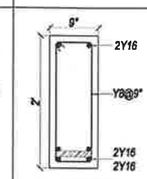
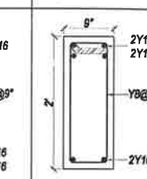
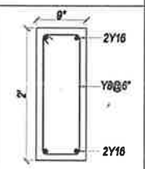
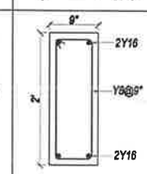
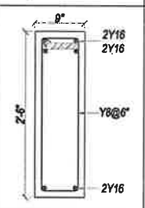
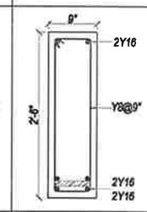
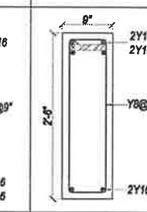
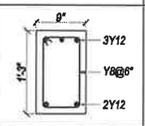
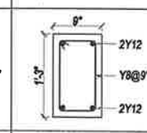
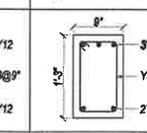
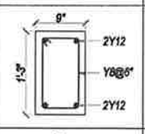
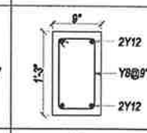
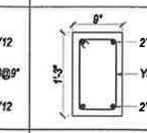
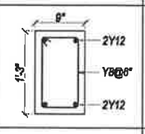
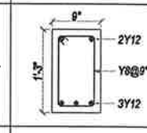
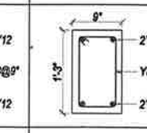
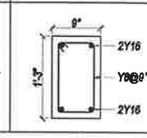
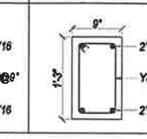
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TITLE

FIFTH FLOOR ROOF BEAM DIMENSION DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117	DRAWING NO : ST-10 A	

SCHEDULE OF ROOF BEAM

ROOF BEAM	SECTION @ LHS	SECTION @ MID SPAN	SECTION @ RHS
B401			
B402			
B403			
B404			
B405			
B406			
B407			
B408			
B409			

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Email: devastr@gmail.com

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA
PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
CHENNAI - 600 061

CLIENT

NITHYA BUILDERS
8/3 , 6 TH MAIN ROAD,
NANGANALLUR,
CHENNAI - 61.

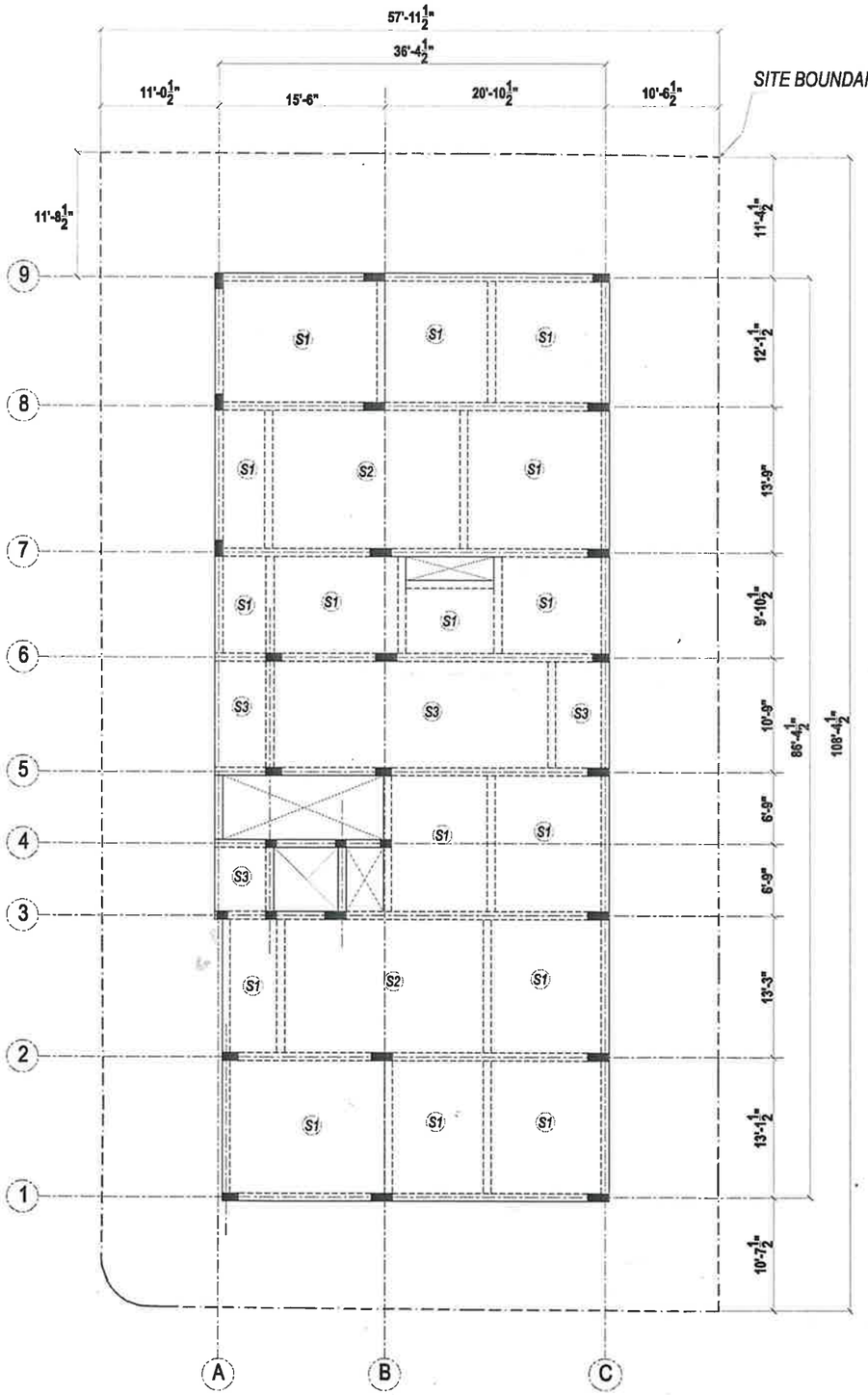
STRUCTURAL CONSULTANT

CMDA REG.NO:SE/GR-I/19/04/110
YV ENGINEERING Services
05, Muthyala reddy nagar,
Chennai -600 088,Tamilnadu , India
email: devastr@gmail.com
Gsm: +91 8610947148

TITLE

FIFTH FLOOR ROOF BEAM DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117		DRAWING NO : ST-11



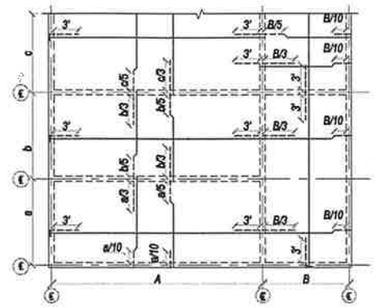
FIFTH FLOOR ROOF SLAB LAYOUT

NOTES:

a. ——— BOTTOM BAR

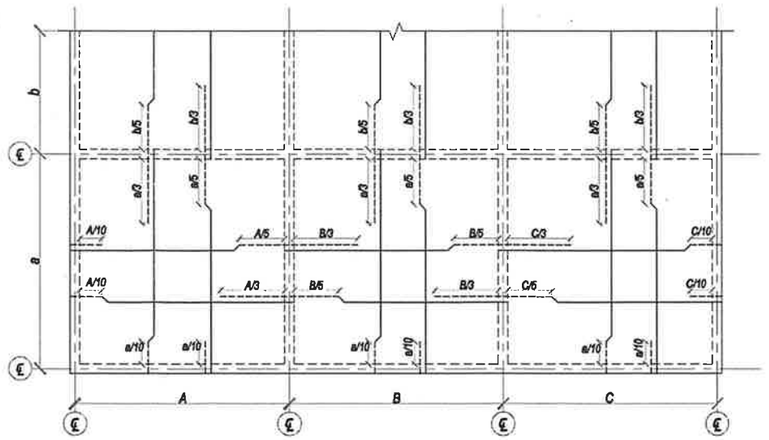
b. - - - - - - - - - - TOP BAR

c. PROVIDED Y8@8" FOR DISTRIBUTION BARS,



PLAN

TYPICAL ONE WAY SLAB REINFORCEMENT DETAILING



PLAN

TYPICAL TWO WAY SLAB REINFORCEMENT DETAILING

SCHEDULE OF SLAB

SLAB NO.	THICKNESS	SHORTER SPAN REINFORCEMENT	LONGER SPAN REINFORCEMENT	REMARKS
S1	5"	Y8@6" C/C	Y8@6" C/C	TWO WAY SLAB
S2	5"	Y10@6" C/C	Y10@6" C/C	TWO WAY SLAB
S3	5"	Y10@4" C/C	Y8@8" C/C	ONE WAY SLAB

N E S W

NOTES:

1. COPYRIGHT OF THIS DRAWING IS THE PROPERTY OF DESIGN ENGINEER.
2. ALL DIMENSIONS ARE IN FEET & INCHES, UNLESS OTHERWISE SPECIFIED.
3. DO NOT SCALE THE DRAWING, FOLLOW FIGURED DIMENSIONS.
4. THIS DRAWING SHOULD BE READ ALONG WITH THE RELEVANT ARCHITECTURAL DRAWINGS. IF ANY DISCREPANCY BETWEEN THIS DRAWING AND OTHER DRAWINGS SHOULD BE BROUGHT TO THE NOTICE OF STRUCTURAL ENGINEER.
5. GRADE OF CONCRETE IS M25 & GRADE OF STEEL IS Fe 550
6. CLEAR COVER FOR
   BEAMS : 25mm(1")
   SLABS : 20mm(.75")

Er. M. DEVARAJ M.E., (Struct.) FMIE., A
CONSULTING STRUCTURAL ENGINEER
CMDA Regn. No: SE/GR-I/19/04/11
GCC Regn. No: RSE101722022
Mob: 94898 85229 / 86109 47148
Email: devastr@gmail.com

	REVISIONS / DETAILS	INITIALS

PROJECT

NITHYA

PROPOSED RESIDENTIAL FLATS
Plot No: E 08,42 ND STREET,
NANGANALLUR,
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TITLE

FIFTH FLOOR ROOF SLAB LAYOUT & DETAILS

DRAWN : RK	DESIGNED : SK	CHECKED : DJ
DATE : 11.FEB.2024	SCALE : 1:150 / A2	APPROVED : DJ
PROJECT NO : C-23117		DRAWING NO : ST-12

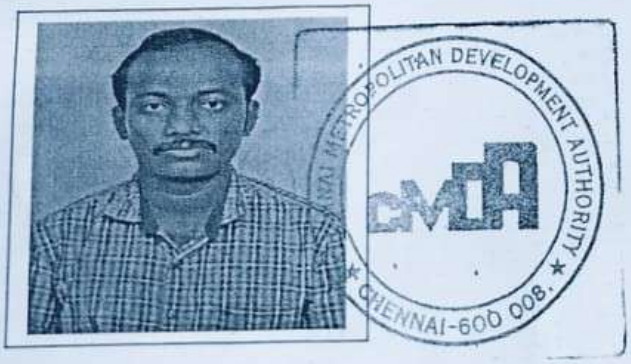
CHENNAI METROPOLITAN DEVELOPMENT AUTHORITY
'ThalamuthuNatarajan Building', No.1, Gandhi Irwin Road,
Egmore, Chennai-600 008.

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that the **Thiru. M. DEVARAJ** has enrolled as **Registered Structural Engineer Grade-I (SE)** with Chennai Metropolitan Development Authority (CMDA) who has the qualification of **M.E., (Structural Engg.)** and experience in the relevant field for **8 years**.

He has been given the Registration No.**SE/GR-I/2019/04/110 Renewed** on **30.04.2024.** He 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 **29.04.2029**.



30/4/24

(A. MEGANATHAN)
Superintendent



our services doesn't just end there

Buying & Selling Services

Property Buying Assistance, Property Selling Support, Market Price Analysis, Owner Outreach and Negotiation.

Legal & Documentation Services

Certified EC, Patta, legal opinions, property verification, due diligence, litigation solutions, and legal heir certificates.

Property Development & Approvals

Building plan approvals, construction, layout and sub-division approvals, zone conversion, and occupancy certification.

NRI & Investment Services

Escrow Services, Rentals, Litigation Solutions, Property Valuation and Property Management

Compliance & Special Services

Demolition, Vaasthu checks, regularization of unauthorized buildings, and office space solutions.



empowering your real estate decisions with smart tools

Property Valuation & Cost Estimation

Guideline Value, Apartment Composite Value, Stamp Duty & Registration Fees Calculator, Building Value Calculator, Capital Gains Calculator, Area Unit Converter, Length Unit Converter

Ownership, Compliance & Legal Verification

Encumbrance Certificate (EC) Search, Find Your SRO, Temple Property Check, WAQF Property Check, View Patta/Chitta, View FMB, Patta Analyzer, EC Analyzer

Zoning & Land Use Analysis

Land Use Zone Finder, CRZ Zone Check, Aquifer Zone Check, CBA Check, EWS Check, Road Width Check, Proposed Road Widening Check, FSI Calculator

Property Documentation & Workflow Tools

Forms & Templates, Document Generator, Document Translation, Dictionary

Vastu & Property Management Tools

Home Vastu Shastra, Plot Vastu Shastra, Property Management

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