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DIGITALLY VERIFIED RECORD

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

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that the **Thiru. R. MANIKANDAN** has enrolled as **Registered Structural Engineer Grade-I (SE)** with Chennai Metropolitan Development Authority (CMDA) who has the qualification of **M.Tech., (Structural Engg.)** and experience in the relevant field for **5 years**.

He has been given the Registration No.**SE/GR-I/2019/06/154 Renewed** on **10.06.2024.** 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 **09.06.2029**.



18/6/24

(A. MEGANATHAN)
Superintendent

R. Manikandan.

R. MANIKANDAN, M.Tech.,(Structures)
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STABILITY CERTIFICATE

(To be furnished while filing application for registration of building)

The detailed engineering and structure design of the proposed building comprising of **STILT FLOOR (PARKING)+5** floors at **Residential Building (18.30M Height) with 15 Dwelling units availing with premium FSI at Block No.M2, East Avenue Road, TNHB,Korattur Scheme, Korattur, Chennai-80** Old T.S.No. 34(Part), 35(Part), 36(Part), 37(Part), 38(Part), 39(Part) and 40(Part) and Old S.No.1178/1(Part), 1179/1(Part), 1180/1(Part), **New T.S.No. 39, Ward-E, Block No.81 of Korattur Village within the Limits of Greater Chennai Corporation** has been done by me / us based on the report of geotechnical investigation (soil test) done by **MUTHU SELVAM.M** (Geo Technical Engineer [RGTE]- CMDA Registration No. GTE/2023/06/61 on 21-06-2023) **DYNAMIQ ENGINEERING RESEARCH CENTRE**, #12, Indira Nagar, Kovilpathagai, Avadi, Chennai-600 062 Report No. **2509** Dated **30-07-2025** 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 Grade**

(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 **IS 875** and design of earthquake resistant structure as per IS Code No **IS 1893 : 2002**

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

Stamp and Signature

Encl.: Structural Design Calculation

R. MANIKANDAN, M.Tech, (Structures)
Registered Structural Engineer Grade I
SE/GR-I/19/06/154 (CMDA), RSE 100692025(GCC)
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DESIGN CALCULATION

PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR (PARKING) + 5 FLOORS RESIDENTIAL BUILDING WITH 15 DWELLING UNITS (HEIGHT - 18.30M) AVAILING PREMIUM FSI AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR, CHENNAI. COMPRISED IN OLD S.NO.1178/1PT, 1179/PT, T.S.NO. 39, BLOCK NO: 81, WARD NO:E OF KORATTUR VILLAGE WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.

STRUCTURAL CONSULTANTS:-

Aura engineering consultants
#8, 50th st, Sarvamangala Colony,
7th Avenue,,Ashok Nagar,
Chennai – 600 083 .
Fixed Line :- 044 4859 7100
projects.auraengg@gmail.com

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1.0 DESIGN BRIEF:

THIS DOCUMENT PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR (PARKING) + 5 FLOORS RESIDENTIAL BUILDING WITH 15 DWELLING UNITS (HEIGHT -18.30M) AVAILING PREMIUM FSI AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR, CHENNAI. COMPRISED IN OLD S.NO.1178/1PT, 1179/PT, T.S.NO. 39, BLOCK NO: 81, WARD NO:E OF KORATTUR VILLAGE WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.

2.0 GENERAL DESIGN CRITERIA

2.1. Description of the structure

The Residential Building consists of Stilt Floor +5 Upper floors and the structure is designed as a RCC framed structure.

1. Size of the building : 24.07 x 15.26M
2. Height of the building : 18.30M
3. Number of storeys above GL : Stilt Floor +5 upper floors
4. Floor to floor height of this building : Ground and First floors - 3.0m
   : Typical floor – 3.0m
5. Type of foundation : Pile foundation as per geotechnical report

2.2. Materials Used

Following materials are generally used in the design of the various components of the structure.
For Concrete Structure

- M25 grade concrete for all reinforced concrete parts of the structure
- Fe500 grade Structural reinforcement steel
- Masonry for all walls : Brick / Block

2.3. Design Codes & Standards

Following codes and specifications have been generally used in the design of the members of the structure.

- IS 456 : 2000 Code of practice for Plain and Reinforced concrete
- SP: 16 Design Aids for Reinforced concrete
- IS 875 : 1987 Design Loads for building and structures
- IS 1893 : 2002 Criteria for Earthquake Resistant design of structures
- IS 13920: 1993 Ductile Detailing of R.C structures subjected to Seismic forces
- SP: 34 Handbook on Concrete Reinforcement & Detailing
- IS 800 : 1984 Code of practice for general construction in steel
- IS 2062 : 1999 Steel for general structural purposes specification
- IS 1786: 1985 Specification for high strength deformed bars and wires for concrete reinforcement

3.0 LOADING

Primary Load:

- Dead Load (DL)
- Live Load (LL)

3.1. Dead load (DL)

Material weight

- Density of Concrete =25 kN/m^3
- D.L. due to partitions
  (Light Partition as per IS 875) =1.50 kN/m^2
- D.L due to floor finish 50mm thick = 0.05x25 = 1.25 kN/m^2

3.2. Live load (LL)

Minimum Uniformly Distributed Live Loads:

Occupancy or use	Live Load (kn/m^2)
All rooms and kitchens	2.00
Toilet and bath rooms	3.00
Corridors, passages, staircases	3.00
Balconies	3.00
Terrace Floor	1.50
Basic wind speed	=50 m/sec
Seismic Zone	=Zone III

3.5 Loading Combinations

The following combinations of Loads as per IS 1893 is considered in the STAAD Analysis

- 1.5(DL +LL)
- 1.2(DL + LL)

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

- 1.0(DL +LL)

4.0 STRUCTURAL MATERIAL:

4.1 Concrete Material Specifications:

Concrete compressive cube strength	- 25 N/mm^2
Minimum cement content	- Refer standard drawings for general & Legends
Cement type	- OPC
Free water cement ratio	- 0.5 (Maximum)
Nominal maximum size of aggregate	- 20mm UNO

4.2 Reinforcement:

Steel reinforcement shall be deformed bars, the characteristic of reinforcement bars shall conform to the following specification:

Grade of Steel	Actual Yield Strength (MPa)
Grade Fe500	Minimum 500 MPa,

4.4 Concrete cover:

Cover for Reinforcement is considered as per Table 16A of NBC, for a Fire resistance of 2 hrs.

- Raft Slab = 50mm
- Footing = 50mm

- RC Wall = 30mm
- Columns = 40mm
- Beams = 30mm
- Slabs = 25mm

5.0 Structural Description

5.1. Method of analysis

Structure analysis & design:

The structure is analyzed as a Space frame structure in STADD Pro Vi8. Columns, Footing, Basement walls, slabs, Beams and Staircases are designed as reinforced concrete members.

5.2. Framing System, Analysis and Design

Limit State concept of design will be used as per IS: 456-2000 & SP - 16. The detailing of reinforcement shall be done satisfying the requirements of IS: 456-2000, SP-16, IS: 13920, IS: 4326-1993 and SP-34.

The Slabs and beams are checked for deflection as per IS 456:2000. Cover for Reinforcement is considered as per Table 16A of NBC, for a Fire resistance of 2 hrs.

APPENDIX I

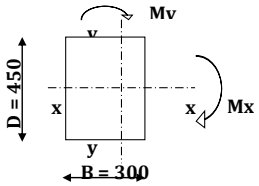
Design Calculations

Column Design

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT. NO.	DATE	DESIGNED	DATE
TITLE	Design for a Short Column with Biaxial Bending	REVISION	DATE	CHECKED	DATE

CL. NO.	DESIGN CALCULATIONS	REFERENCES

Column No:



CRITICAL LOAD CASE:

1.0 Basic Data

1.1 Material Data

Grade of Concrete M 25
Grade of Steel Fe 500

1.2 Codal Data

Nominal Cover	=	40	mm		Cl 26.4.2.1,IS456:2000
Diameter of the Bar	=	25	mm	≥ # mm	
d'	=	52.5	mm		

1.3 Basic Dimensions

Unsupported Length of the Column	L_{ox}	=	3000	mm			
	L_{oy}	=	3000	mm			
	L_{ex}	=	3000	mm			Table 28 ,
	L_{ey}	=	3000	mm			IS456:2000
Size of the Column	B X D	=	300	x	450	mm	

1.4 Analysis Results

Factored Axial Load	P_u	=	780.0	kN	STAAD
Factored Moment	M_{ux}	=	22.00	kNm	OUTPUT
Factored Moment	M_{uy}	=	71.00	kNm	

2.0 Check for Slenderness

Slenderness Ratio about Major Axis	L_{ex} / D	=	6.667	
Slenderness Ratio about Minor Axis	L_{ey} / B	=	10.000	

Since Leff / LLD <12 Designed as Short Column — Cl 25.1.2, IS456:2000

3.0 Check for Eccentricity

Minimum Eccentricity	e_x = L_{ox} / 500 + D / 30	=	21.0	mm	>20	Cl 25.4
	e_y = L_{oy} / 500 + B / 30	=	16.0	mm	<20	IS456:2000

3.1 Moments Due to Minimum Eccentricity

	Me_x	=	16.38	kN.m
	Me_y	=	15.60	kN.m

4.0 Design Moment

Design Moment about X axis	M_{ux}	=	22.00	kN.m
Design Moment about Y axis	M_{uy}	=	71.00	kN.m

5.0 Uniaxial Moment Carrying capacity of the Section about X & Y- axis

d' / D		=	0.117		
d' / B		=	0.175		
Assume the Reinforcement Percentage	p	=	2.00		
p / f_{ck}		=	0.080		
p_u / $f_{ck}BD$		=	0.231		
Reinforcement distributed equally on four sides			4		
M_{ux1} / $f_{ck}BD^2$		=	0.137		Chart 43 - 46
M_{uy1} / $f_{ck}DB^2$		=	0.119		SP 16 : 1980
Moment carrying capacity about X axis	M_{ux1}	=	207.89	kN.m	
Moment carrying capacity about Y axis	M_{uy1}	=	120.61	kN.m	

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT. NO.	DATE	DESIGNED	DATE
TITLE	Design for a Short Column with Biaxial Bending	REVISION	DATE	CHECKED	DATE

CL. NO.	DESIGN CALCULATIONS	REFERENCES
6.0	**Calculation of P_{uz}**	
	P_{uz} = 0.45 f_{ck} A_c + 0.75 f_y A_{sc} = 2500.88 kN	Cl 39.6 , IS456:2000
	P_u/P_{uz} = 0.312	
	a_n = 1.186	Cl 39.6 , IS456:2000
7.0	**Criteria for Biaxial Bending (Bresler's Formulation)**	
	$(M_{ux}/M_{ux1})^{an} + (M_{uy}/M_{uy1})^{an}$ = **0.603** < 1 **Hence Safe**	Cl 39.6 , IS456:2000
8.0	**Longitudinal Reinforcement**	
	Area of compression Steel $A_{sc,reqd}$ = **2700** mm^2	
	10 Nos # + Nos Y20 $A_{sc,pro}$ = **3142** mm	
8.1	**Check for Minimum & Maximum Area of Steel**	
	Minimum Area of steel (0.8 % of A_g,dir) = **441** mm^2 (Based on the area of concrete reqd to resist direct stress)	Cl 26.5.3.1 a & b , IS 456 : 2000
	Maximum Area of steel (4 % of A_g) = **5400** mm	
	441 < **3142** < **5400** mm^2	
	Area of Steel is with in the permissible limit ; Hence O.K	
9.0	**Transverse Reinforcement**	
9.1	Diameter of Transverse Reinforcement = **8** mm ≥ 6 mm	Cl 26.5.3.2 c 2) ,
9.2	**Spacing of Lateral Ties :**	
	i) Least Lateral Dimension of the column = 300 mm	Cl 26.5.3.2 c 1) , IS 456 : 2000
	ii) 16 times the Smallest dia of Longitudinal Steel = 320 mm	
	iii) = 300 mm	
	Reqd. Spacing of Ties (Minimum of the above) = 300 mm	
	Provide 8 mm dia Lateral Ties @ **300** mm Spacing	
	Provide closer spacing on either side of the column above and below beam / slab.	

Footing Design

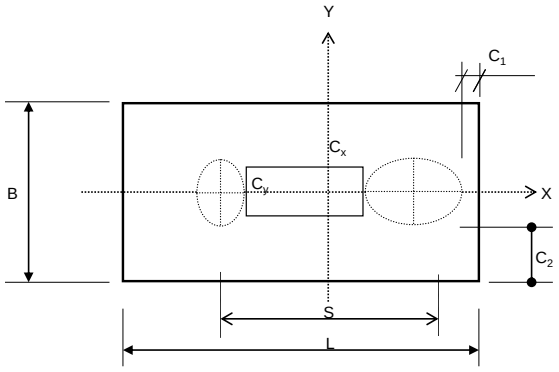
TITLE	: Pilecap Design by Bending Theory		Designed :	Date :	11-Aug-2025
SUBJECT	Two(2) Pile Group - TYPE P2		Checked :	Date :	11-Aug-2025
PROJECT	: RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR		Job No. :	Page No :	

Pile spacing from center to center should not exceed 2.5 times the pile diameter

Total Column Axial Load	N =	500	kN (Service Load)
Total number of piles	=	2	Nos.
Pile Axial Load	P =	250	kN/pile
Combined Load Factor	Lf =	1.5	
Edge of pile to edge	C1 =	150	mm
of pilecap distance	C2 =	150	mm

1. Pile cap geometry

Pile diameter,	D =	450	mm
Pile spacing,	S =	2.50	x D
Pile cap length	L =	1880	mm
Pile cap breadth	B =	750	mm
Pile cap depth	H =	750	mm
Column length	Cx =	230	mm
Column breadth	Cy =	450	mm
Bottom cover	c =	50	mm
Top cover	ct =	50	mm
Side cover	cs =	50	mm
Minimum pilecap depth (Per Reynolds's Handbook)	=	750	mm



2. Pile cap material

Concrete strength	f_{cu} =	25	N/mm²
Steel strength	f_y =	500	N/mm²
Partial safety factor for stre	g_{ms} =	1.15	

3. Reinforcement design

X - direction

Pile center to pile cap center distance	=	565.0	mm
Pile center to column face distance	=	450.0	mm
Bar diameter, f =		25	mm
Ultimate design moment M_{ux} =		168.8	kNm
Eff. depth d_x =		687.5	mm
$K = M_{ux}/bd^2f_{cu}$ =		0.0190	< 0.156, So O.K !
Lever arm z_x =		653.1	mm

Reinforcement required

$M_u/(1/g_{ms} \cdot f_y \cdot z)$ =	731	mm²	
No. of bars =	2	Nos.	
Bar spacing =	625	mm	

Reinforcement provided

As prov =	3436	mm²	
No. of bars =	7	Nos.	O.K.!
Bar spacing =	104	mm	
100As/bd =	0.67		

TITLE	: Pilecap Design by Bending Theory		Designed :	Date :	11-Aug-2025
SUBJECT	Two(2) Pile Group - TYPE P2		Checked :	Date :	11-Aug-2025
PROJECT	: RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR		Job No. :	Page No :	

Y - direction

Bar diameter, f = 16 mm
Eff. depth d_y = 667 mm

Reinforcement required			Reinforcement provided			
$A_{sy\ req}$ =	1692	mm^2	As prov =	1810	mm^2	
No. of bars =	9	Nos.	No. of bars =	9	Nos.	O.K.!
Bar spacing =	221	mm	Bar spacing =	221	mm	
			100As/bd =	0.14		

4. Normal shear

X - direction

V_x = 375 kN
v = 0.73 N/mm^2
v_c = 0.55 N/mm^2
a_v = 315 mm
Enhanced shear = 2.41 N/mm^2 > v, Normal shear O.K.

5. Punching shear

Allowable punching shear = 4.00 N/mm^2
Perimeter of column = 1360 mm
Punching shear stress = 0.80 N/mm^2 ==> Punching shear O.K.

6. Bar anchorage

f_{bu} = 2.50 N/mm^2 (Deformed Bar Type 2) Where $f_{bu} = b\ (f_{cu})^{1/2}$

X - direction

Anchorage length required = 311 mm
Anchorage length available = 900 mm ==> Anchorage O.K.

Plinth Beam Design

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT. NO.	DATE	DESIGNED RMK	DATE
TITLE		REVISION	DATE	CHECKED RMK	DATE

CL. NO.	BEAM DESIGN CALCULATIONS	REFERENCES

1.1 **Geomentry Data**

Beam Number		=	PB1		
Type of Beam		=	Rectangular Beam		
Support Condition		=	Continuous Beam		
Width of beam	b	=	230	mm	
Overall Depth of Beam	D	=	380	mm	
Dia of bar	Φ	=	25	mm	
Nominal Cover	cc	=	30	mm	IS 456:2000 Table 19
Effective Depth	d	=	337.5	mm	IS 456:2000
Effective Cover		=	42.5	mm	Cl 23.0
Effective Span of beam	l_{eff}	=	4500	mm	
Concrete grade		=	M 25		
Steel Grade		=	Fe 500		
$p_{t,lim}$		=	0.944 %		
$p_{t,min}$		=	0.170 %		IS 456:2000
p_t & p_{cmax}		=	4.00 %		Cl 26.5.1.1

1.2 **Force Input**

Left negative moment	(Support 1)	=	84	kNm
Mid span positive moment		=	84	kNm
Right negative moment	(Support 2)	=	84	kNm
Shear @ (Support 1)		=	149	kN
Shear @ (Span)		=	149	kN
Shear @ (Support 2)		=	149	kN

1.3 **Limiting Moment**

M_{ulim} = 0.133 f_{ck} b d^2 = 87.11 kNm

1.4 **Area of Steel**

Minimum Area of Steel = 0.17% b d = 131.9625 mm^2

Support 1

Negative moment	(Support 1)	=	84	kNm

Hence the Section is designed as Singly Reinforced Section

	M_u/bd^2	=	3.206	
Percentage of tension steel reqd	p_t	=	0.028	%
Percentage of compression steel reqd	p_c	=	0	%
Required Area of tension steel	$A_{st\ reqd}$	=	131.96	mm
Required Area of compression steel	$A_{sc\ reqd}$	=	0.00	mm

Detail of bars

	I st Layer		II nd Layer		
	Nos	Dia	Nos	Dia	
Tension Reinforcement	3				
	A_{st} provi	=	603.19	mm	
	Nos	Dia	Nos	Dia	
Compression Reinforcement	3		0		
	A_{sc} provi	=	603.19	mm	

Percentage of tension steel provided	p_t	=	0.777	%	Hence O.K
Percentage of compression steel provided	p_c	=	0.777	%	Hence O.K

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT. NO.	DATE	DESIGNED RMK	DATE
TITLE		REVISION	DATE	CHECKED RMK	DATE

CL. NO.	BEAM DESIGN CALCULATIONS	REFERENCES

Check for Shear

Shear = 149 kN

Nominal Shear Stress	tv	= 1.92	N/mm²	Cl 40.1, IS456:2000
Permissible Shear Stress	tc	= 0.92	N/mm²	β = 1.000
Maximum Shear Stress	tc,max	= 2.5	N/mm²	Table 19, IS456:2000
Diameter of the Stirrup bar		= 8	mm	Table 20, IS456:2000
Number of Legs		= 2		
Spacing of Shear reinforcement Required		= 190.0		Cl 40.4, IS456:2000
Maximum Spacing of Shear Reinforcement		= 250		Cl 26.5.1.5,IS456:2000

Provide 8 mm dia 2 legged stirrups @ 190mm c/c spacing

Support 2

Negative moment = 84 kNm

Hence the Section is designed as Doubly Reinforced Section

	M_u/bd^2	= 3.206		
Percentage of tension steel reqd	p_t	= 0.028	%	
Percentage of compression steel reqd	p_c	= 0	%	
Required Area of tension steel	$A_{st\ reqd}$	= 131.96	mm	
Required Area of compression steel	$A_{sc\ reqd}$	= 0	mm	

Detail of bars

	I st Layer Nos	I st Layer Dia	II nd Layer Nos	II nd Layer Dia
Tension Reinforcement	3		0	0

A_{st} provi = 603.2 mm

	Nos	Dia	Nos	Dia
Compression Reinforcement	3		0	0

A_{sc} provi = 603.19 mm

Percentage of tension steel provided	p_t	= 0.777	%	Hence O.K
Percentage of compression steel provided	p_c	= 0.777	%	Hence O.K

Check for Shear

Shear = 149 kN

Nominal Shear Stress	tv	= 1.92	N/mm²	Cl 40.1, IS456:2000
Permissible Shear Stress	tc	= 0.92	N/mm²	β = 1.000
Maximum Shear Stress	tc,max	= 2.5	N/mm²	Table 19, IS456:2000
Diameter of the Stirrup bar		= 8	mm	Table 20, IS456:2000
Number of Legs		= 2		
Spacing of Shear reinforcement Required		= 190.0		Cl 40.4, IS456:2000
Maximum Spacing of Shear Reinforcement		= 250		Cl 26.5.1.5,IS456:2000

Provide 8 mm dia 2 legged stirrups @ 190mm c/c spacing

Span

Positive moment (Span) = 84 kNm

Hence the Section is designed as Singly Reinforced Section

	M_u/bd^2	= 3.325		
Percentage of tension steel reqd	p_t	= 0.029	%	
Percentage of compression steel reqd	p_c	= 0	%	
Required Area of tension steel	$A_{st\ reqd}$	= 131.96	mm	
Required Area of compression steel	$A_{sc\ reqd}$	= 0	mm	

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT. NO.	DATE	DESIGNED RMK	DATE
TITLE		REVISION	DATE	CHECKED RMK	DATE

CL. NO.	BEAM DESIGN CALCULATIONS	REFERENCES

Detail of bars

	I st Layer Nos	I st Layer Dia	II nd Layer Nos	II nd Layer Dia
Tension Reinforcement	3		0	0

A_{st} provi = 603.19 mm

	Nos	Dia	Nos	Dia
Compression Reinforcement	3		0	0

A_{sc} provi = 603.19 mm

Percentage of tension steel provided p_t = 0.777 % **Hence O.K**
Percentage of compression steel provided p_c = 0.777 % **Hence O.K**

Check for Shear

Shear		=	149	kN
Nominal Shear Stress	tv	=	1.92	N/mm²
Permissible Shear Stress	tc	=	0.92	N/mm²
Maximum Shear Stress	tc,max	=	2.5	N/mm²
Diameter of the Stirrup bar		=	8	mm
Number of Legs		=	2	
Spacing of Shear reinforcement Required		=	190.0	
Maximum Spacing of Shear Reinforcement		=	250	

Provide 8 mm dia 2 legged stirrups @ 190mm c/c spacing

Cl 40.1, IS456:2000
β = 1.000
Table 19, IS456:2000
Table 20, IS456:2000
Cl 40.4, IS456:2000
Cl 26.5.1.5,IS456:2000

Check For Deflection

Basic Value		=	26	Cl.23.2, IS456:2000
Service Stress in Steel	f_s	=	**63.44**	N/mm
Modification Factor(Tension Reinforcement)	F_1	=	2.00	
Allowable Span/Depth		=	52.00	
Actual Span/Depth		=	13.33	**Hence Safe**

Floor Beam Design

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT. NO.	DATE	DESIGNED RMK	DATE
TITLE		REVISION	DATE	CHECKED RMK	DATE

CL. NO.	BEAM DESIGN CALCULATIONS	REFERENCES

1.1 **Geomentry Data**

Beam Number			=	B3		
Type of Beam			=	Rectangular Beam		
Support Condition			=	Continuous Beam		
Width of beam		b	=	300	mm	
Overall Depth of Beam	AT PLOT NO : 5	D	=	525	mm	
Dia of bar	JAGADAMBAL	Φ	=	25	mm	
Nominal Cover		cc	=	30	mm	IS 456:2000 Table 19
Effective Depth		d	=	482.5	mm	IS 456:2000
Effective Cover			=	42.5	mm	Cl 23.0
Effective Span of beam		l_{eff}	=	3700	mm	
Concrete grade			=	M 25		
Steel Grade			=	Fe 500		
$p_{t,lim}$			=	0.944 %		
$p_{t,min}$			=	0.170 %		IS 456:2000
p_t & p_{cmax}			=	4.00 %		Cl 26.5.1.1

1.2 **Force Input**

Left negative moment (Support 1)		=	254	kNm	
Mid span positive moment		=	254	kNm	
Right negative momer (Support 2)		=	254	kNm	
Shear @ (Support 1)		=	241	kN	
Shear @ (Span)		=	241	kN	
Shear @ (Support 2)		=	241	kN	

1.3 **Limiting Moment**

M_{ulim} = 0.133 f_{ck} b d^2 = 232.22 kNm

1.4 **Area of Steel**

Minimum Area of = 0.17% b d = 246.075 mm^2

Support 1

Negative moment (Support 1)		=	254	kNm	
Hence the Section is designed as Doubly Reinforced Section					
	M_u/bd^2	=	3.637		
Percentage of tension steel reqd	p_t	=	1.023	%	
Percentage of compression steel req	p_c	=	0.085	%	
Required Area of tension steel	$A_{st\ reqd}$	=	1480.79	mm^2	
Required Area of compression steel	$A_{sc\ reqd}$	=	123.04	mm^2	

Detail of bars

	I st Layer		II nd Layer			
	Nos	Dia	Nos	Dia		
Tension Reinforcemer	3	20	3	20		
	A_{st} provided	=	1884.96	mm		
	Nos	Dia	Nos	Dia		
Compression Reinforc	3	20	3	20		
	A_{sc} provided	=	1884.96	mm		
Percentage of tension steel provided	p_t	=	1.302	%	Hence O.K	
Percentage of compression steel pro	p_c	=	1.302	%	Hence O.K	

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT. NO.	DATE	DESIGNED RMK	DATE
TITLE		REVISION	DATE	CHECKED RMK	DATE

CL. NO.	BEAM DESIGN CALCULATIONS					REFERENCES
	Check for Shear					
	Shear		=	241	kN	
	Nominal Shear Stress	tv	=	1.66	N/mm^2	Cl 40.1, IS456:2000
	Permissible Shear Stress	tc	=	0.92	N/mm^2	β = 1.000
	Maximum Shear Stress	tc,max	=	2.5	N/mm^2	Table 19, IS456:2000
	Diameter of the Stirrup bar		=	8	mm	Table 20, IS456:2000
	Number of Legs		=	2		
	Spacing of Shear reinforcement Required		=	190.0		Cl 40.4, IS456:2000
	Maximum Spacing of Shear Reinforcement		=	300		Cl 26.5.1.5,IS456:2000
	Provide 8 mm dia 2 legged stirrups @ 190mm c/c spacing					
	Support 2					
	Negative moment		=	254	kNm	
	Hence the Section is designed as Doubly Reinforced Section					
		M_u/bd	=	3.637		
	Percentage of tension steel reqd	p_t	=	1.023	%	
	Percentage of compression steel req	p_c	=	0.085	%	
	Required Area of tension steel	$A_{st\ reqd}$	=	1480.79	mm^2	
	Required Area of compression steel	$A_{sc\ reqd}$	=	123.04	mm^2	
	Detail of bars					
		I st Layer		II nd Layer		
		Nos	Dia	Nos	Dia	
	Tension Reinforcemei	3	20	3	20	
	A_{st} provided	=	1884.9556	mm		
		Nos	Dia	Nos	Dia	
	Compression Reinforc	3	20	3	20	
	A_{sc} provided	=	1884.96	mm		
	Percentage of tension steel provided	p_t	=	1.302	%	Hence O.K
	Percentage of compression steel pro	p_c	=	1.302	%	Hence O.K
	Check for Shear					
	Shear		=	241	kN	
	Nominal Shear Stress	tv	=	1.66	N/mm^2	Cl 40.1, IS456:2000
	Permissible Shear Stress	tc	=	0.92	N/mm^2	β = 1.000
	Maximum Shear Stress	tc,max	=	2.5	N/mm^2	Table 19, IS456:2000
	Diameter of the Stirrup bar		=	8	mm	Table 20, IS456:2000
	Number of Legs		=	2		
	Spacing of Shear reinforcement Required		=	190.0		Cl 40.4, IS456:2000
	Maximum Spacing of Shear Reinforcement		=	300		Cl 26.5.1.5,IS456:2000
	Provide 8 mm dia 2 legged stirrups @ 190mm c/c spacing					
	Span					
	Positive moment (Span)		=	254	kNm	
	Hence the Section is designed as Doubly Reinforced Section					
		M_u/bd^2	=	3.325		
	Percentage of tension steel reqd	p_t	=	1.023	%	
	Percentage of compression steel req	p_c	=	0.085	%	
	Required Area of tension steel	$A_{st\ reqd}$	=	1480.79	mm^2	
	Required Area of compression steel	$A_{sc\ reqd}$	=	123.04	mm^2	

PROJEC	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT. NO.	DATE	DESIGNED RMK	DATE
TITLE		REVISION	DATE	CHECKED RMK	DATE

CL. NO.	BEAM DESIGN CALCULATIONS	REFERENCES

Detail of bars

	I st Layer		II nd Layer		
	Nos	Dia	Nos		Dia
Tension Reinforcemei	3	20	3		20
	A_{st} provided	=	1884.96	mm	
Compression Reinforc	3	20	3		20
	A_{sc} provided	=	1884.96	mm	

Percentage of tension steel provided	p_t	=	1.302	%	**Hence O.K**
Percentage of compression steel pro	p_c	=	1.302	%	**Hence O.K**

Check for Shear

Shear		=	241	kN	
Nominal Shear Stress	tv	=	1.66	N/mm^2	Cl 40.1, IS456:2000
Permissible Shear Stress	tc	=	0.92	N/mm^2	β = 1.000
Maximum Shear Stress	tc,max	=	2.5	N/mm^2	Table 19, IS456:2000
Diameter of the Stirrup bar		=	8	mm	Table 20, IS456:2000
Number of Legs		=	2		
Spacing of Shear reinforcement Required		=	190.0		Cl 40.4, IS456:2000
Maximum Spacing of Shear Reinforcement		=	300		Cl 26.5.1.5,IS456:2000

Provide 8 mm dia 2 legged stirrups @ 190mm c/c spacing

Check For Deflection

Basic Value		=	26		Cl.23.2, IS456:2000
Service Stress in Steel	f_s	=	**227.82**	N/mm^2	
Modification Factor(Tension Reinforcement)	F_1	=	0.97		
Allowable Span/Depth		=	25.22		
Actual Span/Depth		=	7.67	**Hence Safe**	

Floor Slab Design

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT.NO.	DATE	DESIGNEI	DATE
TITLE	TWO WAY SLAB DESIGN	REVISION	DATE	CHECKED	DATE

CL. NO.	DESIGN CALCULATIONS	REFERENCES

1.0 Design of Two Way Slab S3

1.0.1 Basic Input Data

Grade of concrete		=	**M 25**		
Grade of steel		=	**Fe 500**		
Thickness of slab	D	=	**125**	mm	
Clear cover	cc	=	**25**	mm	Table 16 Cl.26.4.2 , IS 456 -2000
Effective thickness of slab (d_{eff}) = 125 - 25 - 4		=	96	mm	
Unit weight of concrete		=	25	KN/m^3	Cl 19.2.1, IS 456-2000
Effective Shorter Span	L_x	=	**3.2**	m	
Effective Longer Span	L_y	=	**6.4**	m	
Aspect ratio	L_y/L_x	=	2.00	= 2	

Hence designed as Two way slab — Cl D-1.11, IS 456-2000

Edge Condition : **One Long edge Discontinuous**

1.0.2 Load Data

Self Weight of Slab	= ### 25	=	3.125	KN/m^2
Floor finish		=	**1.500**	KN/m^2
Partition Load		=	**1.500**	KN/m^2
Sunken Filling		=	**0.000**	KN/m^2
Imposed Load		=	**2.000**	KN/m^2 — IS 875 (Part 2) -1987
Extra Load, (if Any)		=	**0.000**	KN/m^2
Total load		=	8.125	KN/m^2
Design load (Wu) = 1.5 x 8.125		=	**12.188**	KN/m^2 — Table 18 Cl 36.4.1 IS 456 -2000

1.0.3 Moment and Shear Calculations

Short Span Direction

a_x for positive moment	1.75	→	0.059		Table 26 Cl D-1.1, IS 456 -2000
	2	→	0.065		
	for 2.00	a_x =	0.065		
Positive moment M_x : 0.065 x	#### 3.2 ^2	=	**8.11**	KN-m	
a_x for negative moment	1.75	→	0.077		Table 26 Cl D-1.1, IS 456 -2000
	2	→	0.085		
	for 2.00	a_x =	0.085		
Negative moment M_x : 0.085 x	#### 3.2 ^2	=	**10.61**	KN-m	

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT.NO.	DATE	DESIGNEI	DATE
TITLE	TWO WAY SLAB DESIGN	REVISION	DATE	CHECKED	DATE

CL. NO.	DESIGN CALCULATIONS	REFERENCES
	Long Span Direction	
	For positive moment a_y = 0.028	Table 26 Cl D-1.1,
	Positive moment M_y : 0.028 x #### 3.2 ^2 = **3.49** KN-m	IS 456 -2000
	For negative moment a_y = 0.037	Table 26 Cl D-1.1,
	Negative moment M_y : 0.037 x #### 3.2 ^2 = **4.62** KN-m	IS 456 -2000
	Shear force V_u = 12.19 x 3 x 1 = **19.50** KN	
1.0.4	**Check Effective Depth for Max.Bending Moment**	
	Depth required = $(M_; (0.133x\ fck\ x\ b))^{1}$ = 56.48 mm	Table C,SP 16 :1980
	Depth provided = 125 - 25 - 8 /2 = 96 mm > ### mı	Cl 2.3
	Hence the section is Safe against Bending	
1.0.5	**Check Depth for Shear**	
	Nominal Shear Stress : $t_v = V_u / b\ d$ = 0.20 N/mm^2	Cl.40.1, IS 456:2000
	Design shear strength (t_c) = 0.42 N/mm^2	Table 19 , IS 456:2000
	k = 1.30	Cl.40.2.1.1,
	$k * t_c$ = 0.55 N/mm^2	IS 456:2000
	t_v < $k * t_c$ **Hence the section is Safe against Shear**	
1.0.6	**Check for Maximum Shear Stress:**	
	Nominal Shear Stress : $t_v = V_u / b\ d$ = 0.20 N/mm^2	Cl.40.1, IS 456:2000
	Maximum Shear Stress ($t_{c,max}$) = 3.1 N/mm^2	Table 20 , IS 456:2000
	# $t_{c,max}$ = 1.55 N/mm^2	
	t_v < 1 $t_{c,max}$ **Hence the section is Safe against Max.Shear Stress**	Cl.40.2.3.1, IS 456:200
1.0.7	**Reinforcement calculations**	
	Short Span Direction @ Support	
	$Mu/bd = \frac{10.61 \times 10^6}{1000 \times 96 \times 96} = \mathbf{1.151}$	
	Pt = **0.28** %	Table 2-4, SP16 :1980

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT.NO.	DATE	DESIGNEI	DATE
TITLE	TWO WAY SLAB DESIGN	REVISION	DATE	CHECKED	DATE

CL. NO.	DESIGN CALCULATIONS	REFERENCES

Area of steel Ast = 0.0028 x 1000 96 = 269.25365 mm^2
Minimum area of steel 0.0012 x 1000 125 = 150.00 mm^2 Cl:26.5.2.1
Spacing of Y **8** bars 50.27 x 1000 269.25 = 186.58986 mm IS 456 -2000

Check for Spacing

Minimum of
1) 3d = 288 mm
2) = 300 mm Cl:26.3.3.(b).1
3) = 186.59 mm IS 456 -2000

Therefore provide Y **8** @ **180** mm C/C

Short Span Direction @ Mid Span

$$Mu/bd = \frac{8.11 \times 10^{6}}{1000 \times 96 \times 96} = 0.880$$

Pt = 0.211 % SP16 :1980 Table 2-4

Area of steel Ast = 0.0021 x 1000 96 = 202.92922 mm^2 IS 456:2000
Minimum area of steel 0.0012 x 1000 125 = 150.00 mm^2 Cl:26.5.2.1
Spacing of Y **8** bars 50.27 x 1000 202.93 = 247.574 mm

Check for Spacing

Minimum of
1) 3d = 288 mm IS 456:2000
2) = 300 mm Cl:26.3.3.(b).1
3) = 247.57 mm

Therefore provide Y **8** @ **150** mm C/C 150
Provided % of Tension Reinforcement (pt) = **0.349** %

Long Span Direction @ Support

$$Mu/bd = \frac{4.62 \times 10^{6}}{1000 \times 96 \times 96} = 0.501$$

Pt = 0.118 % SP16 :1980 Table 2-4

Area of steel Ast = 0.0012 x 1000 96 = 113.30457 mm^2 IS 456:2000
Minimum area of steel 0.0012 x 1000 125 = 150.00 mm^2 Cl:26.5.2.1
Spacing of Y **8** bars 50.27 x 1000 150.00 = 334.93333 mm

PROJECT	RESIDENTIAL BUILDING (S+5) AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR	DOCUMENT.NO.	DATE	DESIGNEI	DATE
TITLE	TWO WAY SLAB DESIGN	REVISION	DATE	CHECKED	DATE

CL. NO.	DESIGN CALCULATIONS	REFERENCES

Check for Spacing

Minimum of 1) 3d = 288 mm — IS 456:2000
2) = 300 mm — Cl:26.3.3.(b).1
3) = 334.93 mm

Therefore provide Y **8** @ **280** mm C/C

Long Span Direction @ mid Span

$$Mu/bd = \frac{3.49 \times 10^6}{1000 \times 96 \times 96} = 0.379$$

Pt = 0.089 % — SP16 :1980 Table 2-4

Area of steel Ast = 0.0009 x 1000 96 = 85.233489 mm^2 — IS 456:2000
Minimum area of steel 0.0012 x 1000 125 = 150.00 mm^2 — Cl:26.5.2.1
Spacing of Y **8** bars 50.27 x 1000 150.00 = 334.93333 mm

Check for Spacing

Minimum of 1) 3d = 288 mm — IS 456:2000
2) = 300 mm — Cl:26.3.3.(b).1
3) = 334.93 mm

Therefore provide Y **8** @ **280** mm C/C

1.0.8 **Check for Deflection:** **(Simplified Approach)**

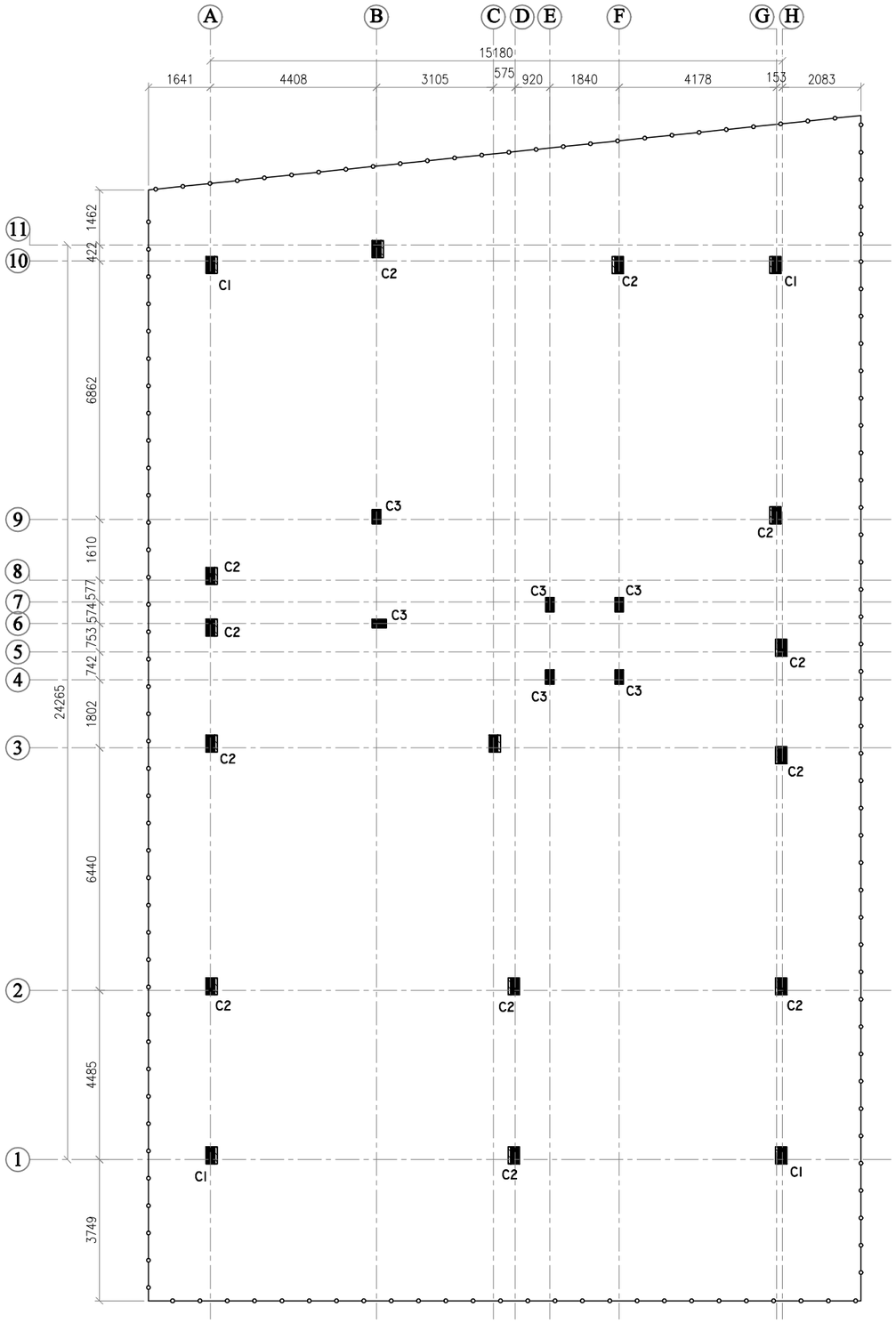
Basic Span/depth Ratio = **26** — IS 456:2000 Cl:23.2.1
% of Tension Reinforcement provided (p_t) = 0.349 %
Service stress of steel (fs) 0.58 fy (Ast_R/Ast_ = 175.62 N/mm^2 — IS456:2000 Fig 4
Modification Factor for Tension Reinforcemer = 1.98 — Page 38
Allowable Span / Effective Depth Ratio = 51.51 — IS 456:2000 Cl:23.2.1
Actual Span/Eff Depth Rat = 3.2 x 1000 / 96 = 33.33

Hence Safe against Deflection

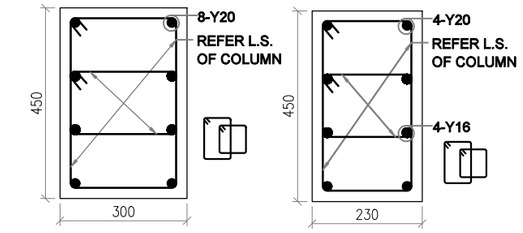
APPENDIX II

GENERAL ARRANGEMENT DRAWINGS

THIS DRAWING IS THE PROPERTY OF M/s. AURA ENGINEERING CONSULTANTS. AND MUST NOT BE COPIED WITHOUT THEIR WRITTEN CONSENT. NOR MADE KNOWN TO THE THIRD PARTY

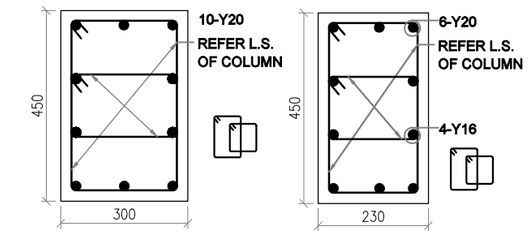


LAYOUT OF COLUMN



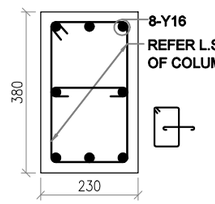
C.S. OF COLUMN "C1"
(300 x 450)
UP TO GFR

C.S. OF COLUMN "C1"
(230 x 450)
GFR TO TOP

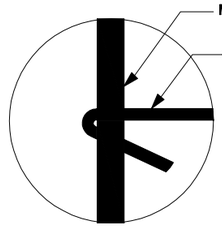


C.S. OF COLUMN "C2"
(300 x 450)
UP TO GFR

C.S. OF COLUMN "C2"
(230 x 450)
GFR TO TOP



C.S. OF COLUMN "C3"
(230 x 380)
UP TO TOP



HOOK DETAIL

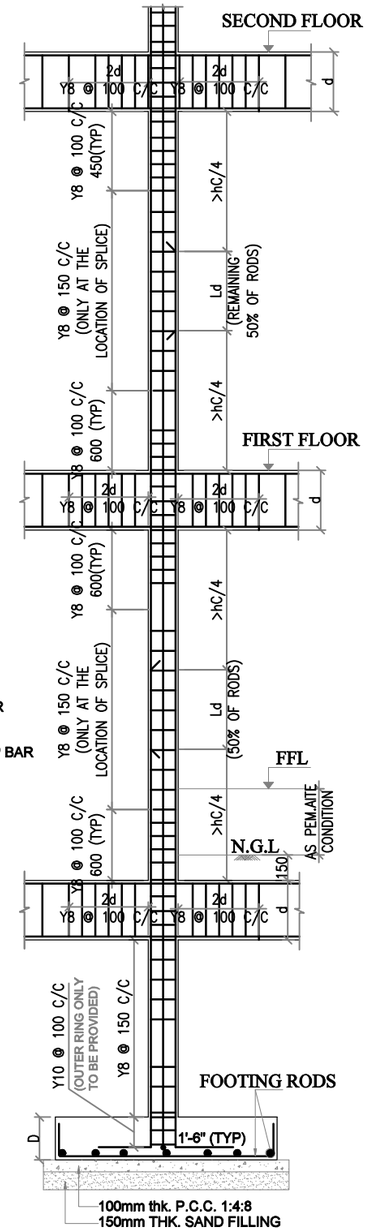
COLUMN SCHEDULE			
S.NO.	NAME	SIZE	
		UPTO STILT ROOF	STILT ROOF TO TOP
1.	C1	300 X 450	230 X 450
2.	C2	300 X 450	230 X 450
3.	C3	230 X 380	230 X 380

NOTE:

N.G.L - NATURAL GROUND LEVEL.

ALL HOOKS SHOULD BE BENT TO AN ANGLE OF 135° WITH A LENGTH NOT LESS THAN 75 MM

FOR APPROVAL ONLY



REINFORCEMENT DETAILING COLUMN

(ALTERNATE RODS TO BE LAPPED IN ALTERNATE FLOORS)

GENERAL NOTES:

REMOVAL OF FORMWORK(SHUTTERING) :

SHUTTERING OF ANY PART OF THE STRUCTURE SHALL NOT BE REMOVED UNTIL THE CONCRETE ATTAINS 70% THE SPECIFIED STRENGTH OF CONCRETE. HOWEVER THE FOLLOWING MINIMUM PERIOD (AFTER FINAL POUR) SHALL BE ALLOWED BEFORE REMOVAL OF SHUTTERING AS PER CLAUSE 11.3.1, IS 456:2000

A) VERTICAL SIDE OF SHUTTERING OF COLUMNS,WALLS

LAP JOINTS FOR REINFORCEMENT BARS :

I) AT ANY CROSS SECTION OF THE MEMBER,NOT MORE THAN 50 % THE BARS SHALL BE LAPPED.

II) LAPS SHALL BE STAGGERED WITH A MINIMUM CENTRE TO CENTRE DISTANCE OF1.3 TIMES LAP LENGTH OF THE BAR FOR TENSION & COMPRESSION MEMBERS.

III) DEVELOPMENT LENGTH (Ld) SHALL BE AS PER (SP:34-1999) TABLE BELOW:

A) DEVELOPMENT LENGTH FOR COLUMN BARS -40D
B) DEVELOPMENT LENGTH FOR BEAM BARS -50D

IV) LAPS IN COLUMNS SHALL BE PROVIDED AT MID HEIGHT OF FLOOR AND NOT AT SLAB LEVEL .

VII) DETAILING OF REBARS SHALL CONFIRM TO IBC

EXCAVATION AND BACKFILL

I) BACKFILL FOR FOUNDATIONS AND PITS SHALL BE PLACED EVENLY LAYERS OF 300 MM THICKNESS AND SHALL BE WELL COMPACTED. THE FILL SHALL CONTAIN NO STONES WITH A DIAMETER GREATER THAN 100 MM. THE DEGREE OF COMPACTION OF BACKFILL SHALL BE 95% OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT OBTAINED BY THE MODIFIED PROCTOR COMPACTION TEST.

II) UNSUITABLE MATERIALS LIKE ROCKS/ EXISTING FOOTINGS ARE DETECTED BELOW FOUNDATION LEVEL IN AREAS OF CUT SHALL BE EXCAVATED TO FIRM GROUND. THE RESULTANT EXCAVATION SHALL BE FILLED TO THE REQUIRED LEVELS WITH MASS CONCRETE GRADE M10. ALSO WHEREVER EXCAVATION OCCURS BELOW THE FOUNDATION LEVEL STATED ON THE DESIGN DRAWING THE RESULTING VOID SHALL BE BACK FILLED WITH MASS CONCRETE GRADE-10.

III) BEFORE CASTING FOUNDATIONS, ANY IMMEDIATE OR ADJACENT AREAS OF DISTURBED OM.AOFT SOIL MUST BE REMOVED AND REPLACED WITH MASS CONCRETE OF GRADE 10

IV) A LAYER OF BLINDING CONCRETE 100 MM THICK SHALL BE PLACED UNDER ALL FOUNDATIONS. BLINDING CONCRETE SHALL HAVE A CHARACTERISTIC STRENGTH OF 10 N/MM AT 28 DAYS.

V) EXCAVATED FINE-GRAINED SOIL ENCOUNTERED AT SHALLOW DEPTHS SHALL BE IN NO CASE USED FOR BACK FILLING PURPOSES.

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MM.
2. CONCRETE GRADE SHALL BE M25 CONFIRMING TO IS 456:2000
3. GRADE OF REINFORCEMENT MARKED THUS (Y) SHALL BE Fe 500 CONFIRMING TO IS 1786-2008
4. CLEAR COVER FOR REINFORCEMENT
   A) COLUMN = 40MM
5. THIS DRG. READ IN CONJECTION WITH ARCH.DRGS.
6. COLUMNS AND FOOTINGS ARE DESIGNED FOR S+5 FLOOR LOADS AND SBC OF THE SOIL IS 150KN/ SQM. @ 1800 BELOW N.G.L.
7. STRUCTURAL ENGINEER RESPONSIBILITY IS LIMITED TO DESIGN & ISSUAL OF STRUCTURAL DRAWING ONLY
8. ONUS OF CONSTRUCTION LIES WITH CONTRACTOR/OWNER

REV.	DESCRIPTIONS	DRN	CHK	DATE
00	ISSUE FOR APPROVAL	R.P	R.M	11.08.25

PROJECT :-

PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR (PARKING) + 5 FLOORS RESIDENTIAL BUILDING WITH 15 DWELLING UNITS (HEIGHT -18.30M) AVAILING PREMIUM FSI AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR, CHENNAI. COMPRISED IN OLD S.NO.1178/1PT, 1179/PT, T.S.NO. 39, BLOCK NO: 81, WARD NO:E OF KORATTUR VILLAGE WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.

DRAWING TITLE :-

LAYOUT & R.C DETAILS OF COLUMN

DATE	SCALE	JOB.NO	DRG.NO
11.08.25	1 : 120	-------	001

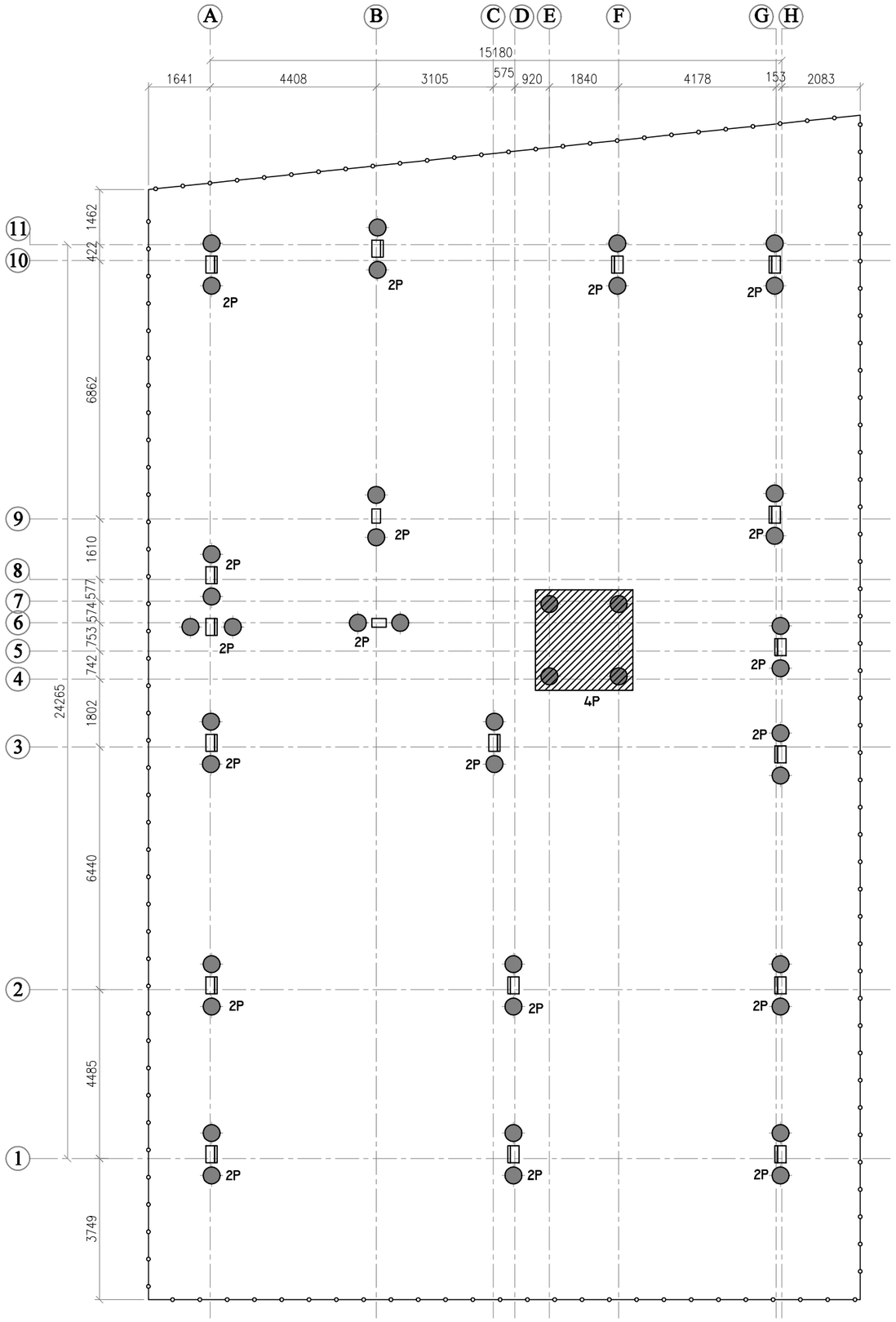
ARCHITECT / CONSULTANTS :-

STRUCTURAL CONSULTANTS :-

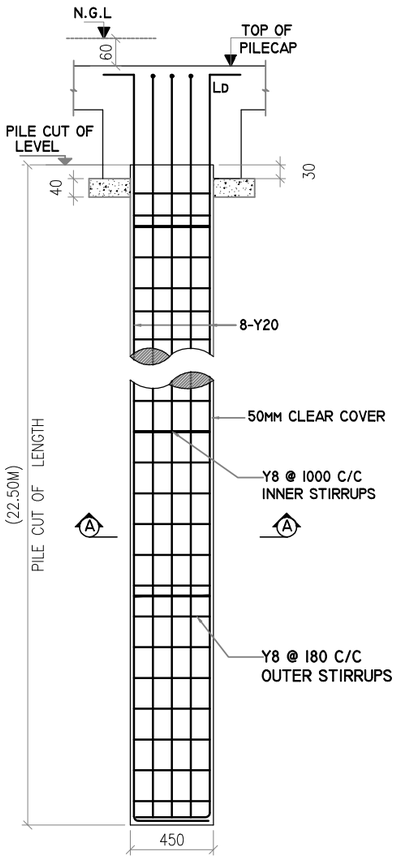
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http://auraengineers.co.in/
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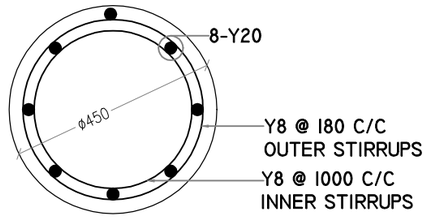
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LAYOUT OF PILE





SECTION "A-A"
C.S OF PILE - 450 DIA.

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II) LAPS SHALL BE STAGGERED WITH A MINIMUM CENTRE TO CENTRE DISTANCE OFI.3 TIMES LAP LENGTH OF THE BAR FOR TENSION & COMPRESSION MEMBERS.

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B) DEVELOPMENT LENGTH FOR BEAM BARS - 50D

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VII) DETAILING OF REBARS SHALL CONFIRM TO SP-34 & I3920

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REV.	DESCRIPTIONS	DRN	CHK	DATE
00	ISSUE FOR APPROVAL	R.P	R.M	11.08.25

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PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR (PARKING) + 5 FLOORS RESIDENTIAL BUILDING WITH 15 DWELLING UNITS (HEIGHT -18.30M) AVAILING PREMIUM FSI AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR, CHENNAI. COMPRISED IN OLD S.NO.1178/1PT, 1179/PT, T.S.NO. 39, BLOCK NO: 81, WARD NO:E OF KORATTUR VILLAGE WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.

DRAWING TITLE :-

LAYOUT OF PILE

DATE	SCALE	JOB.NO	DRG.NO
11.08.25	1 : 100	———	002

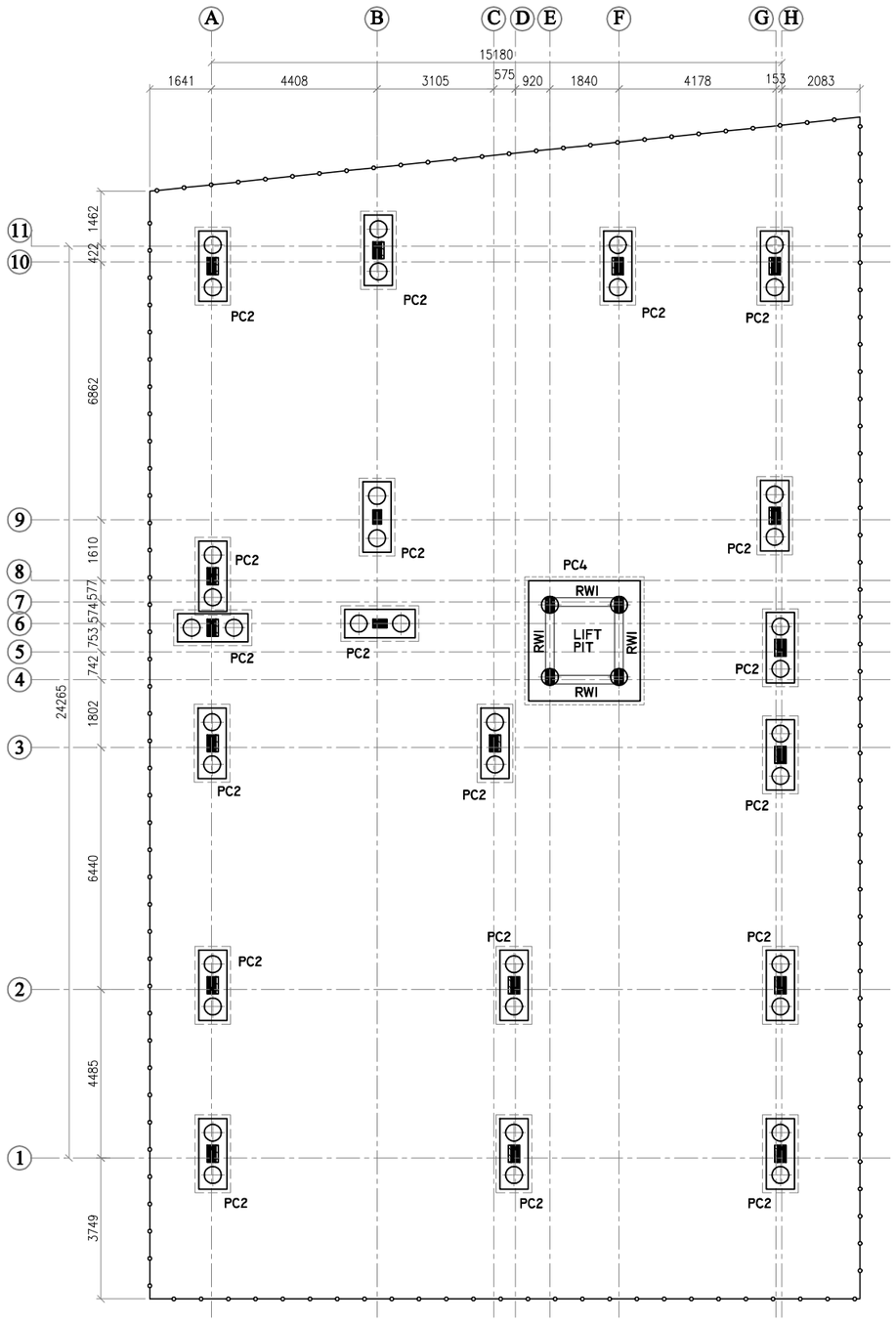
ARCHITECT / CONSULTANTS :-

STRUCTURAL CONSULTANTS :-

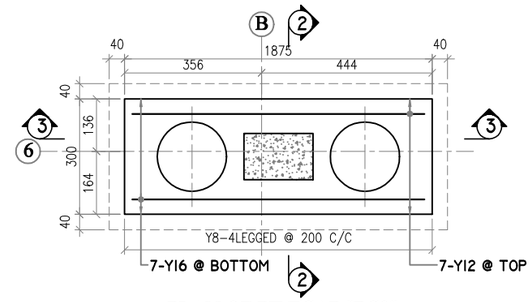
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Fixed Line :- 044 4859 7100
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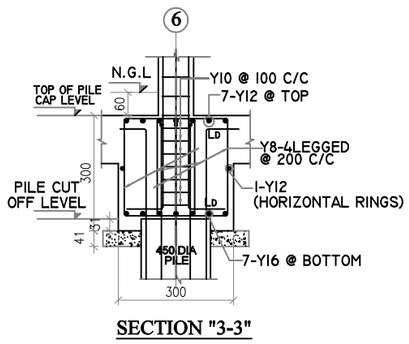
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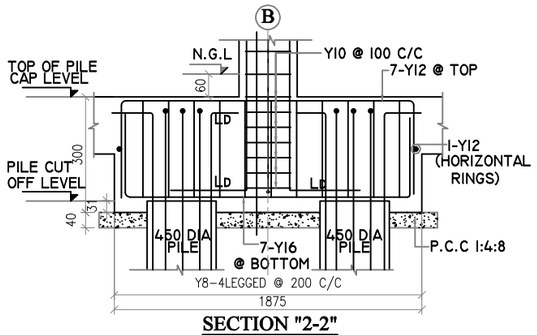
LAYOUT OF PILECAP



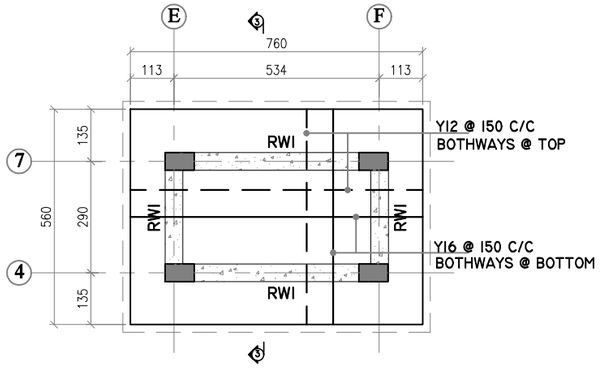
PLAN OF PILECAP "PC2"
(1835 X 750 X 750)



SECTION "3-3"



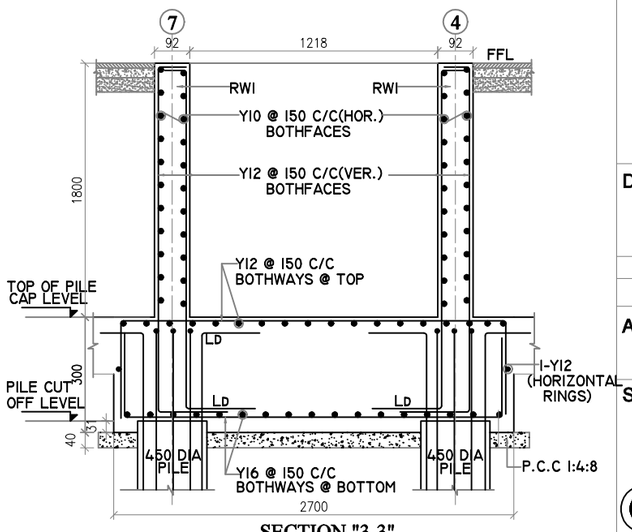
SECTION "2-2"



PLAN OF PILECAP "PC4"
2600 X 2700 X 750

PILECAP SCHEDULE:

S.NO.	NAME	SIZE
01.	PC2	1875 X 750 X 750
02.	PC4	3800 X 2800 X 750



SECTION "3-3"

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DRAWING TITLE :-

LAYOUT OF PILE CAP

DATE	SCALE	JOB.NO	DRG.NO
11.08.25	1 : 100	------	003

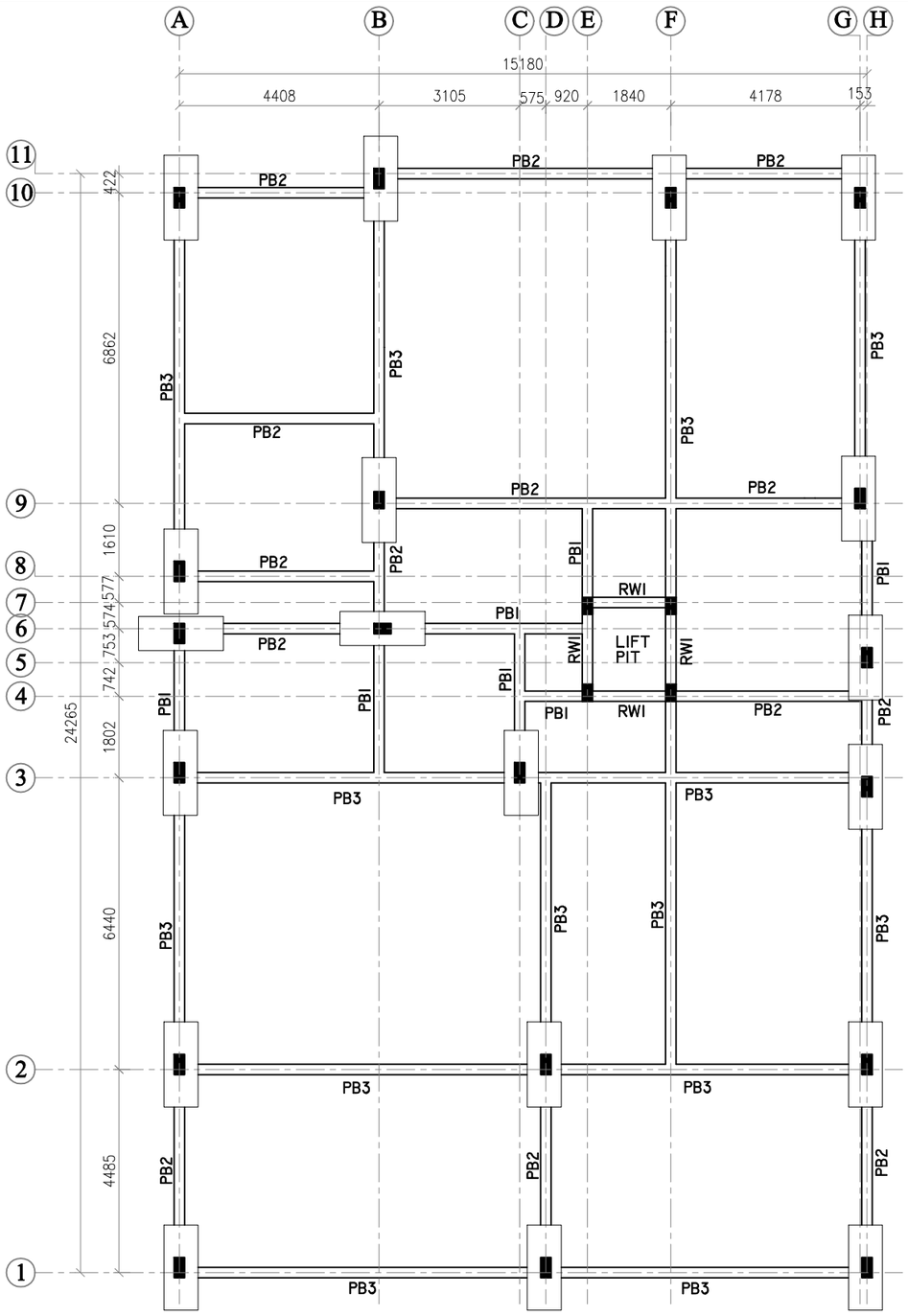
ARCHITECT / CONSULTANTS :-

STRUCTURAL CONSULTANTS :-

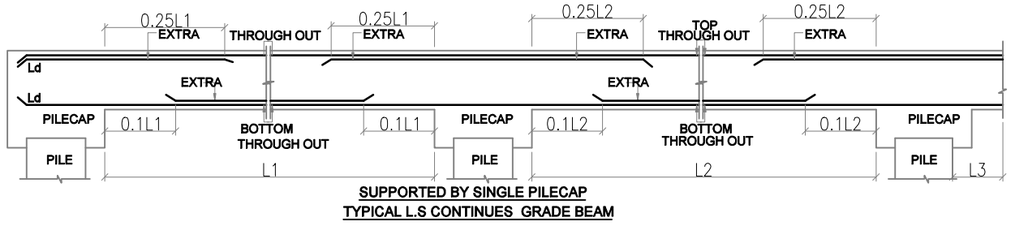
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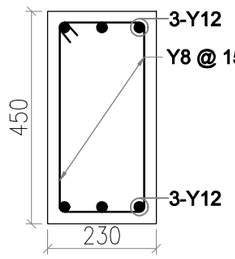


LAYOUT OF PLINTH BEAM

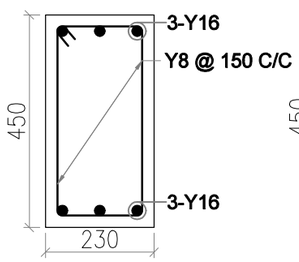


SUPPORTED BY SINGLE PILECAP
TYPICAL L.S CONTINUES GRADE BEAM

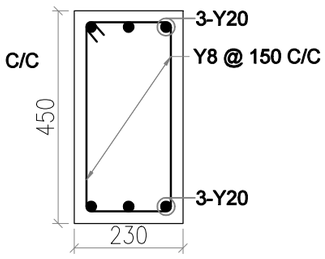
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C.S. OF BEAM "PB1"
(230 x 450)

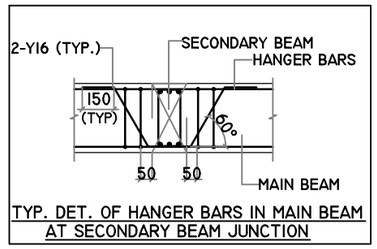


C.S. OF BEAM "PB2"
(230 x 450)

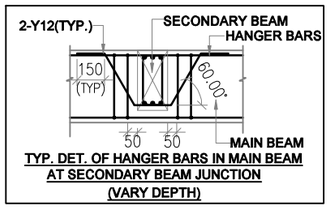


C.S. OF BEAM "PB3"
(230 x 450)

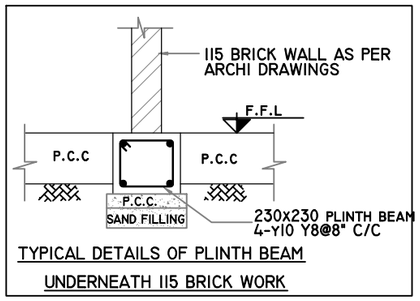
S.NO.	NAME	SIZE
01.	PB1	230 X 450
02.	PB2	230 X 450
03.	PB3	230 X 450



TYP. DET. OF HANGER BARS IN MAIN BEAM
AT SECONDARY BEAM JUNCTION

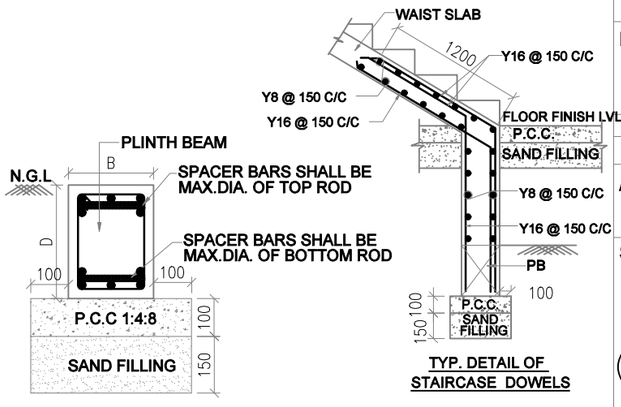


TYP. DET. OF HANGER BARS IN MAIN BEAM
AT SECONDARY BEAM JUNCTION
(VARY DEPTH)



TYPICAL DETAILS OF PLINTH BEAM
UNDERNEATH 115 BRICK WORK

FOR APPROVAL ONLY



TYP. DETAIL OF
STAIRCASE DOWELS

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DRAWING TITLE :-

LAYOUT OF PILNTH BEAM

DATE	SCALE	JOB.NO	DRG.NO
11.08.25	1 : 110	------	004

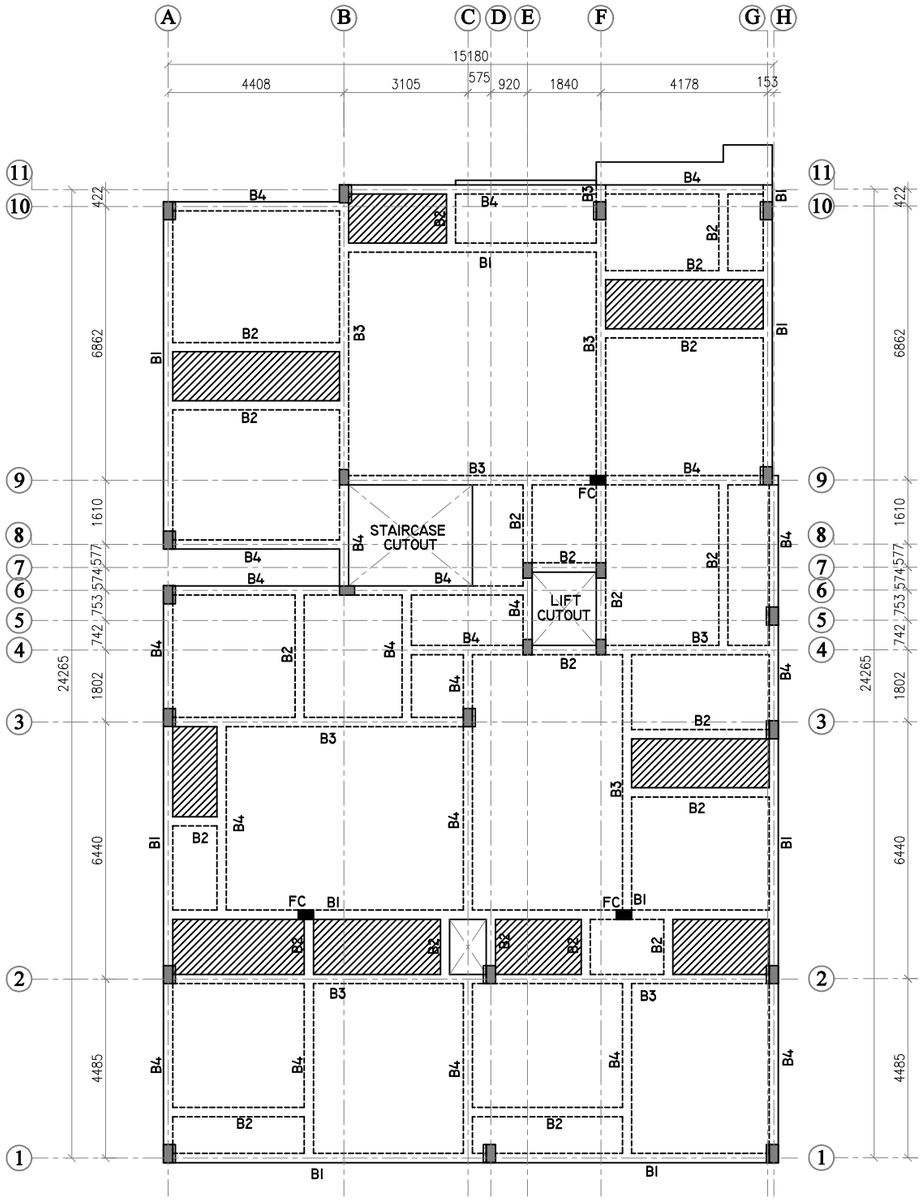
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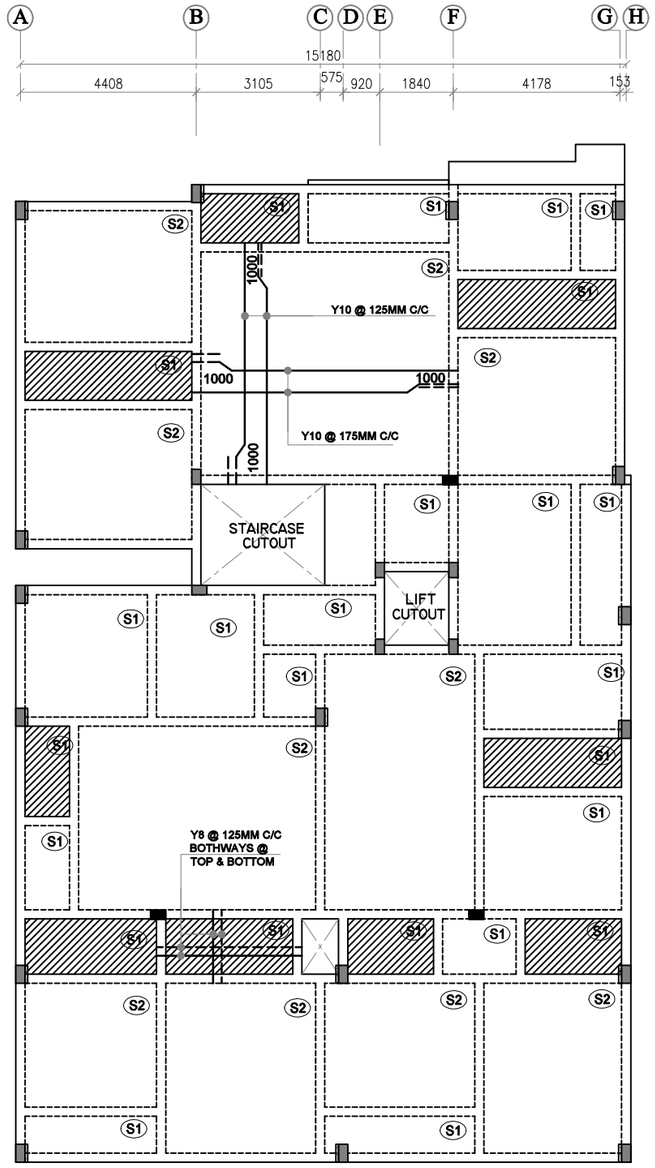
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NUMERATION LAYOUT OF STILT FLOOR

ROOF SLAB & BEAM



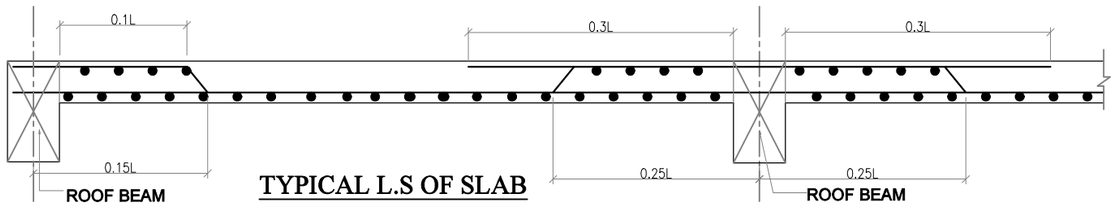
R.C LAYOUT OF STILT FLOOR

ROOF SLAB & BEAM

FOR APPROVAL ONLY

NOTE:

- SLAB SUNK BY 0'-10"
- COLUMN CURTAILED TO BE BEND IN TO TOP OF THE SLAB
- PROVIDE Y8 @ 8" C/C AS DISTRIBUTORS WHERE EVER REQUIRED
- FOR BEAM REINFORCEMENT DETAILS REFER DWG.NO : 008



TYPICAL L.S OF SLAB

BEAM SCHEDULE		
SL.NO	NAME	SIZE
01	B1	230 x 450
02	B2	230 x 450
03	B3	230 x 530
04	B4	230 x 450

SLAB SCHEDULE		
SL.NO	NAME	THICK
01	S1	150 THK.
02	S2	150 THK.

GENERAL NOTES:

REMOVAL OF FORMWORK(SHUTTERING) :

SHUTTERING OF ANY PART OF THE STRUCTURE SHALL NOT BE REMOVED UNTIL THE CONCRETE ATTAINS 70% THE SPECIFIED STRENGTH OF CONCRETE. HOWEVER THE FOLLOWING MINIMUM PERIOD (AFTER FINAL POUR) SHALL BE ALLOWED BEFORE REMOVAL OF SHUTTERING AS PER CLAUSE 11.3.1, IS 456:2000

A) VERTICAL SIDE OF SHUTTERING OF COLUMNS,WALLS

LAP JOINTS FOR REINFORCEMENT BARS :

I) AT ANY CROSS SECTION OF THE MEMBER,NOT MORE THAN 50 % THE BARS SHALL BE LAPPED.

II) LAPS SHALL BE STAGGERED WITH A MINIMUM CENTRE TO CENTRE DISTANCE OFI.3 TIMES LAP LENGTH OF THE BAR FOR TENSION & COMPRESSION MEMBERS.

III) DEVELOPMENT LENGTH (LD) SHALL BE AS PER (SP:34-1999) TABLE BELOW:

A) DEVELOPMENT LENGTH FOR COLUMN BARS -40D
B) DEVELOPMENT LENGTH FOR BEAM BARS -50D

IV) LAPS IN COLUMNS SHALL BE PROVIDED AT MID HEIGHT OF FLOOR AND NOT AT SLAB LEVEL .

VII) DETAILING OF REBARS SHALL CONFIRM TO IBC

EXCAVATION AND BACKFILL

I) BACKFILL FOR FOUNDATIONS AND PITS SHALL BE PLACED EVENLY LAYERS OF 300 MM THICKNESS AND SHALL BE WELL COMPACTED. THE FILL SHALL CONTAIN NO STONES WITH A DIAMETER GREATER THAN 100 MM. THE DEGREE OF COMPACTION OF BACKFILL SHALL BE 95% OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT OBTAINED BY THE MODIFIED PROCTOR COMPACTION TEST.

II) UNSUITABLE MATERIALS LIKE ROCKS/ EXISTING FOOTINGS ARE DETECTED BELOW FOUNDATION LEVEL IN AREAS OF CUT SHALL BE EXCAVATED TO FIRM GROUND. THE RESULTANT EXCAVATION SHALL BE FILLED TO THE REQUIRED LEVELS WITH MASS CONCRETE GRADE M10. ALSO WHEREVER EXCAVATION OCCURS BELOW THE FOUNDATION LEVEL STATED ON THE DESIGN DRAWING THE RESULTING VOID SHALL BE BACK FILLED WITH MASS CONCRETE GRADE-10.

III) BEFORE CASTING FOUNDATIONS, ANY IMMEDIATE OR ADJACENT AREAS OF DISTURBED OM.AOFT SOIL MUST BE REMOVED AND REPLACED WITH MASS CONCRETE OF GRADE 10

IV) A LAYER OF BLINDING CONCRETE 100 MM THICK SHALL BE PLACED UNDER ALL FOUNDATIONS. BLINDING CONCRETE SHALL HAVE A CHARACTERISTIC STRENGTH OF 10 N/MM AT 28 DAYS.

V) EXCAVATED FINE-GRAINED SOIL ENCOUNTERED AT SHALLOW DEPTHS SHALL BE IN NO CASE USED FOR BACK FILLING PURPOSES.

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MM.
2. CONCRETE GRADE SHALL BE M25 (1:1.5:3) CONFIRMING TO IS 456:2000
3. GRADE OF REINFORCEMENT MARKED THUS (Y) SHALL BE Fe 500 CONFIRMING TO IS 1786-2008
4. CLEAR COVER FOR REINFORCEMENT
   A) BEAM = 30MM B) SLAB = 20MM
5. THIS DRG. READ IN CONJECTION WITH ARCH.DRGS.
6. STRUCTURAL ENGINEER RESPONSIBILITY IS LIMITED TO DESIGN & ISSUAL OF STRUCTURAL DRAWING ONLY
7. ONUS OF CONSTRUCTION LIES WITH CONTRACTOR/OWNER

REV.	DESCRIPTIONS	DRN	CHK	DATE
00	ISSUE FOR APPROVAL	R.P	R.M	11.08.25

PROJECT :-

PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR (PARKING) + 5 FLOORS RESIDENTIAL BUILDING WITH 15 DWELLING UNITS (HEIGHT -18.30M) AVAILING PREMIUM FSI AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR, CHENNAI. COMPRISED IN OLD S.NO.1178/1PT, 1179/PT, T.S.NO. 39, BLOCK NO: 81, WARD NO:E OF KORATTUR VILLAGE WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.

DRAWING TITLE :-

NUMERATION LAYOUT & R.C LAYOUT OF STILT FLOOR ROOF SLAB & BEAMS

DATE	SCALE	JOB.NO	DRG.NO
11.08.25	1 : 100	———	005

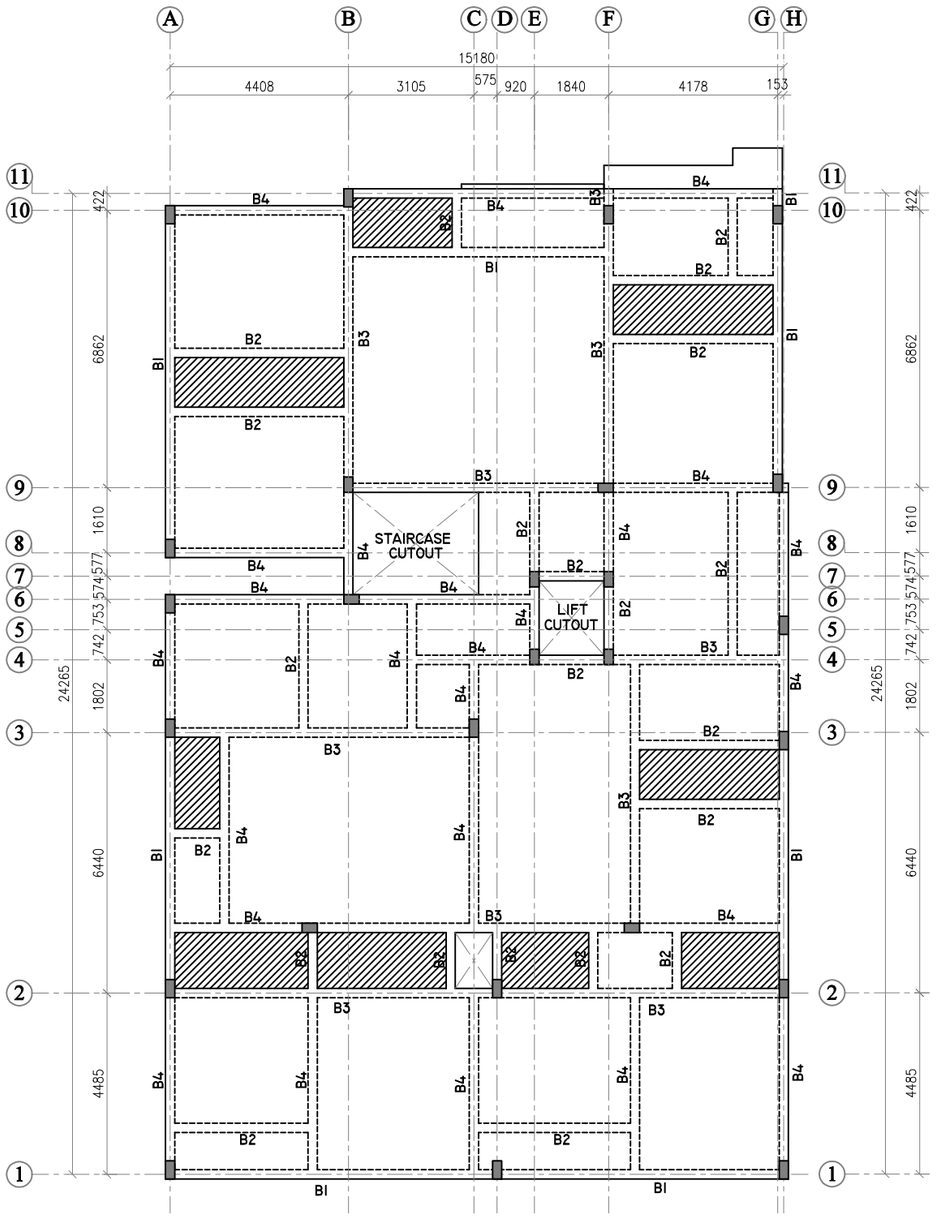
ARCHITECT / CONSULTANTS :-

STRUCTURAL CONSULTANTS :-

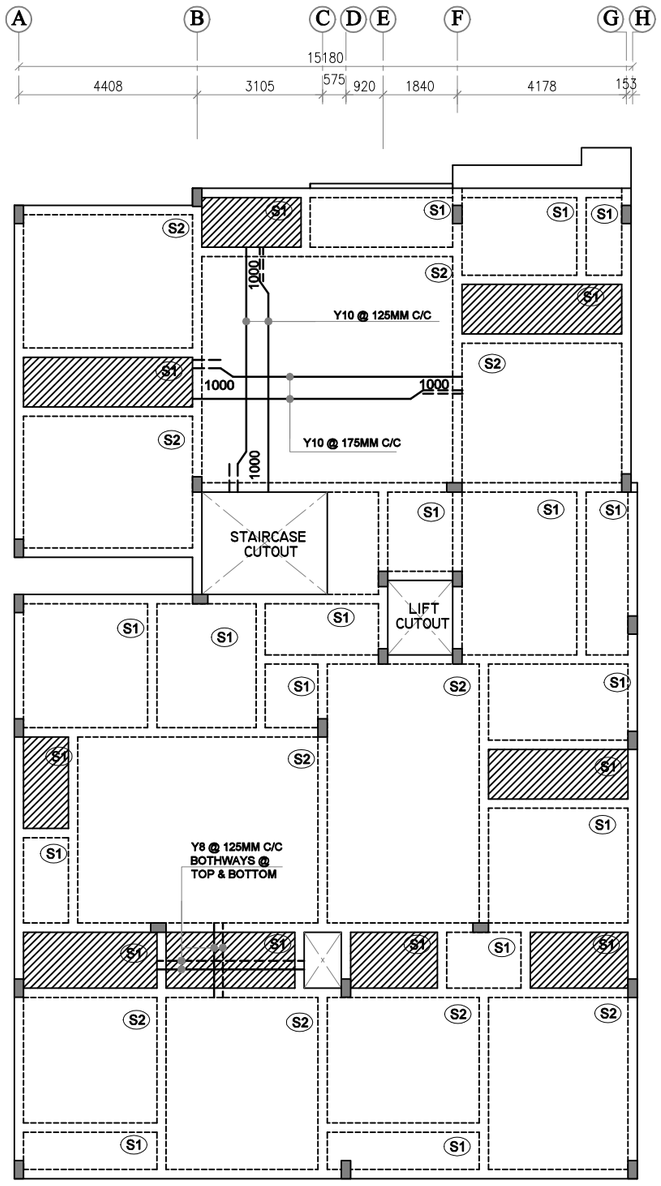
AURA ENGINEERING CONSULTANTS
#8, 50th St, Sarvamangala Colony, 7th Avenue,
ASHOK NAGAR, CHENNAI- 600 083.
Fixed Line :- 044 4859 7100
projects.auraengg@gmail.com
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aura Engineeering Consultants

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NUMERATION LAYOUT OF TYPICAL FLOOR ROOF SLAB & BEAM



R.C LAYOUT OF TYPICAL FLOOR ROOF SLAB & BEAM

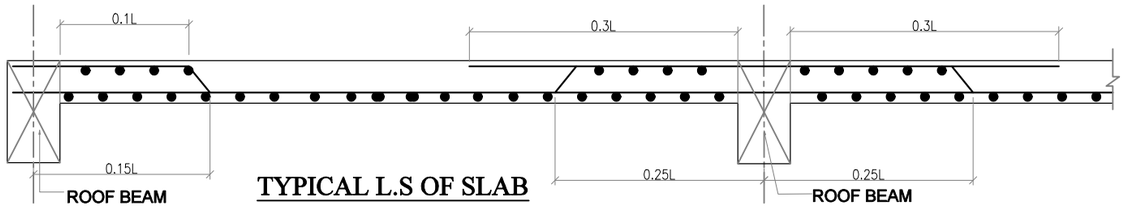
NOTE:

SLAB SUNK BY 0'-10"

PROVIDE Y8 @ 8" C/C AS DISTRIBUTORS WHERE EVER REQUIRED

FOR BEAM REINFORCEMENT DETAILS REFER DWG.NO : 008

FOR APPROVAL ONLY



TYPICAL L.S OF SLAB

BEAM SCHEDULE		
SL.NO	NAME	SIZE
01	B1	230 x 450
02	B2	230 x 450
03	B3	230 x 530
04	B4	230 x 450

SLAB SCHEDULE		
SL.NO	NAME	THICK
01	S1	150 THK.
02	S2	150 THK.

GENERAL NOTES:

REMOVAL OF FORMWORK(SHUTTERING) :

SHUTTERING OF ANY PART OF THE STRUCTURE SHALL NOT BE REMOVED UNTIL THE CONCRETE ATTAINS 70% THE SPECIFIED STRENGTH OF CONCRETE. HOWEVER THE FOLLOWING MINIMUM PERIOD (AFTER FINAL POUR) SHALL BE ALLOWED BEFORE REMOVAL OF SHUTTERING AS PER CLAUSE 11.3.1, IS 456:2000

A) VERTICAL SIDE OF SHUTTERING OF COLUMNS,WALLS

LAP JOINTS FOR REINFORCEMENT BARS :

I) AT ANY CROSS SECTION OF THE MEMBER,NOT MORE THAN 50 % THE BARS SHALL BE LAPPED.

II) LAPS SHALL BE STAGGERED WITH A MINIMUM CENTRE TO CENTRE DISTANCE OFI.3 TIMES LAP LENGTH OF THE BAR FOR TENSION & COMPRESSION MEMBERS.

III) DEVELOPMENT LENGTH (LD) SHALL BE AS PER (SP:34-1999) TABLE BELOW:

A) DEVELOPMENT LENGTH FOR COLUMN BARS -40D
B) DEVELOPMENT LENGTH FOR BEAM BARS -50D

IV) LAPS IN COLUMNS SHALL BE PROVIDED AT MID HEIGHT OF FLOOR AND NOT AT SLAB LEVEL .

VII) DETAILING OF REBARS SHALL CONFIRM TO IBC

EXCAVATION AND BACKFILL

I) BACKFILL FOR FOUNDATIONS AND PITS SHALL BE PLACED EVENLY LAYERS OF 300 MM THICKNESS AND SHALL BE WELL COMPACTED. THE FILL SHALL CONTAIN NO STONES WITH A DIAMETER GREATER THAN 100 MM. THE DEGREE OF COMPACTION OF BACKFILL SHALL BE 95% OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT OBTAINED BY THE MODIFIED PROCTOR COMPACTION TEST.

II) UNSUITABLE MATERIALS LIKE ROCKS/ EXISTING FOOTINGS ARE DETECTED BELOW FOUNDATION LEVEL IN AREAS OF CUT SHALL BE EXCAVATED TO FIRM GROUND. THE RESULTANT EXCAVATION SHALL BE FILLED TO THE REQUIRED LEVELS WITH MASS CONCRETE GRADE M10. ALSO WHEREVER EXCAVATION OCCURS BELOW THE FOUNDATION LEVEL STATED ON THE DESIGN DRAWING THE RESULTING VOID SHALL BE BACK FILLED WITH MASS CONCRETE GRADE-10.

III) BEFORE CASTING FOUNDATIONS, ANY IMMEDIATE OR ADJACENT AREAS OF DISTURBED OM.AOFT SOIL MUST BE REMOVED AND REPLACED WITH MASS CONCRETE OF GRADE 10

IV) A LAYER OF BLINDING CONCRETE 100 MM THICK SHALL BE PLACED UNDER ALL FOUNDATIONS. BLINDING CONCRETE SHALL HAVE A CHARACTERISTIC STRENGTH OF 10 N/MM AT 28 DAYS.

V) EXCAVATED FINE-GRAINED SOIL ENCOUNTERED AT SHALLOW DEPTHS SHALL BE IN NO CASE USED FOR BACK FILLING PURPOSES.

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MM.
2. CONCRETE GRADE SHALL BE M25 (1:1.5:3) CONFIRMING TO IS 456:2000
3. GRADE OF REINFORCEMENT MARKED THUS (Y) SHALL BE Fe 500 CONFIRMING TO IS 1786-2008
4. CLEAR COVER FOR REINFORCEMENT
   A) BEAM = 30MM B) SLAB = 20MM
5. THIS DRG. READ IN CONJECTION WITH ARCH.DRGS.
6. STRUCTURAL ENGINEER RESPONSIBILITY IS LIMITED TO DESIGN & ISSUAL OF STRUCTURAL DRAWING ONLY
7. ONUS OF CONSTRUCTION LIES WITH CONTRACTOR/OWNER

REV.	DESCRIPTIONS	DRN	CHK	DATE
00	ISSUE FOR APPROVAL	R.P	R.M	11.08.25

PROJECT :-

PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR (PARKING) + 5 FLOORS RESIDENTIAL BUILDING WITH 15 DWELLING UNITS (HEIGHT -18.30M) AVAILING PREMIUM FSI AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR, CHENNAI. COMPRISED IN OLD S.NO.1178/1PT, 1179/PT, T.S.NO. 39, BLOCK NO: 81, WARD NO:E OF KORATTUR VILLAGE WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.

DRAWING TITLE :-

NUMERATION LAYOUT & R.C LAYOUT OF TYPICAL FLOOR ROOF SLAB & BEAMS

DATE	SCALE	JOB.NO	DRG.NO
11.08.25	1 : 100	———	006

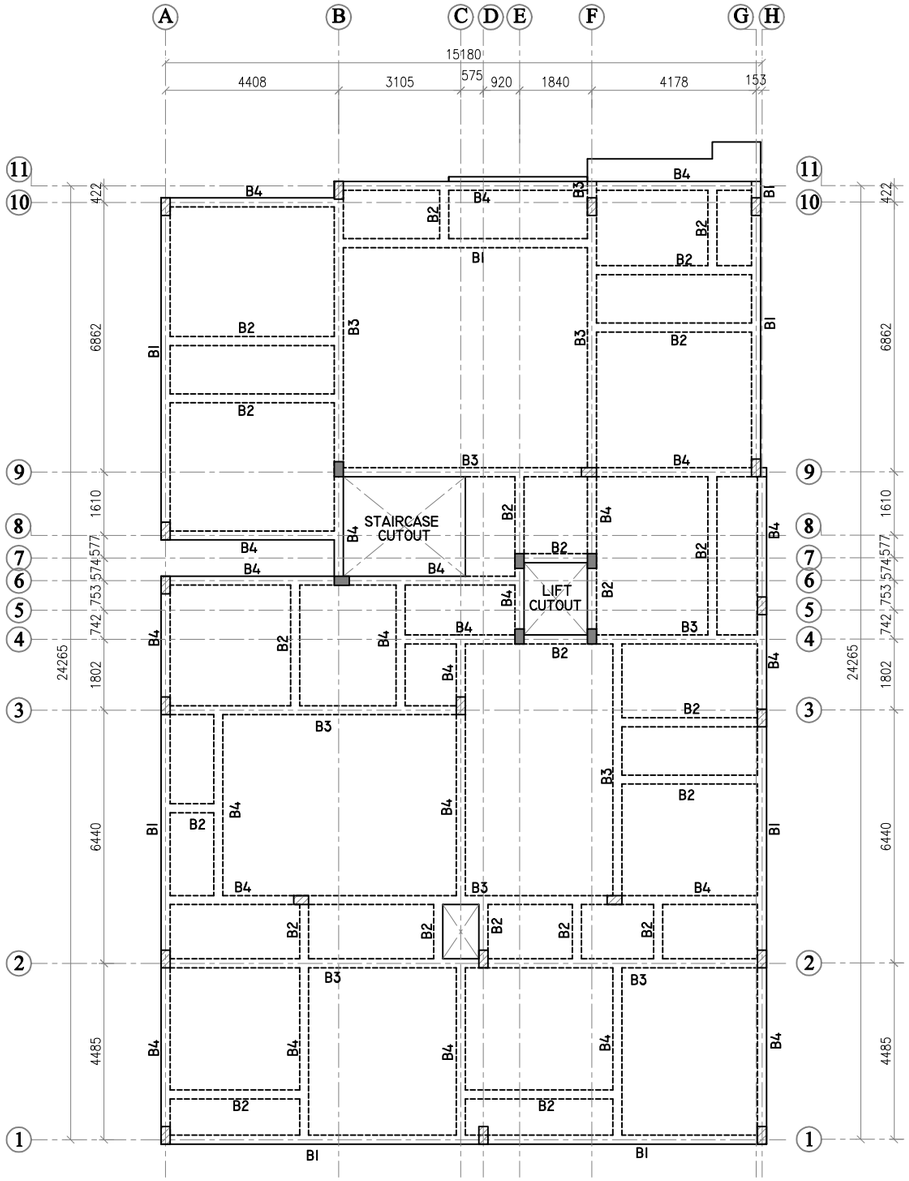
ARCHITECT / CONSULTANTS :-

STRUCTURAL CONSULTANTS :-

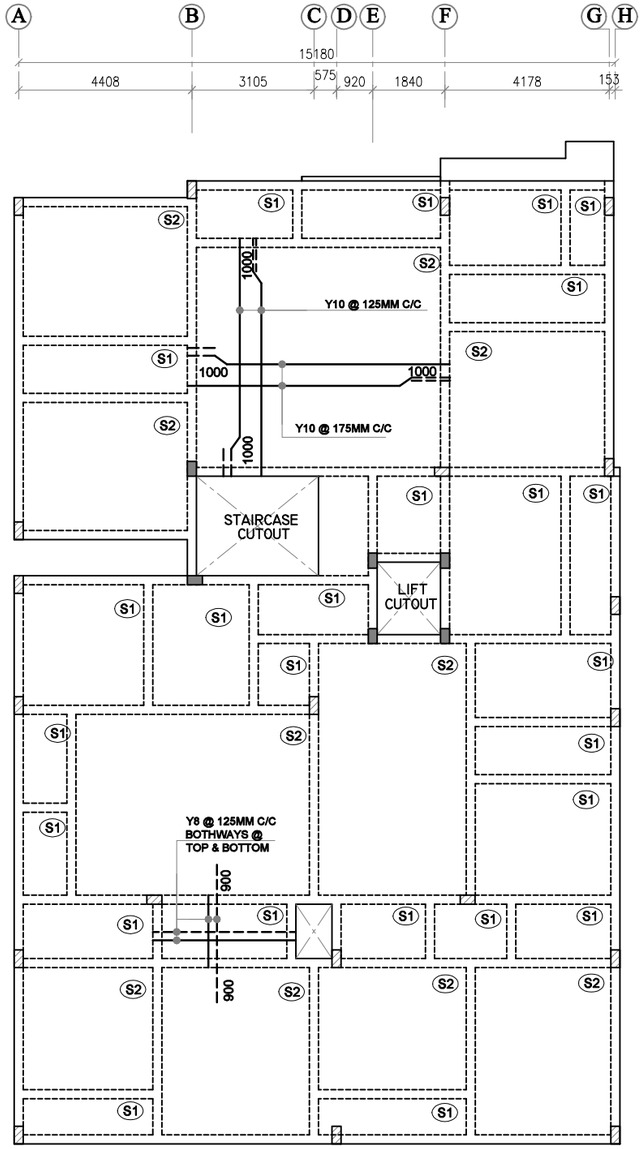
AURA ENGINEERING CONSULTANTS
#8, 50th St, Saravamangala Colony, 7th Avenue, ASHOK NAGAR, CHENNAI- 600 083.
Fixed Line :- 044 4859 7100
projects.auraengg@gmail.com
projects@auraengineers.co.in
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NUMERATION LAYOUT OF TERRACE FLOOR SLAB & BEAM



R.C LAYOUT OF TERRACE FLOOR SLAB & BEAM

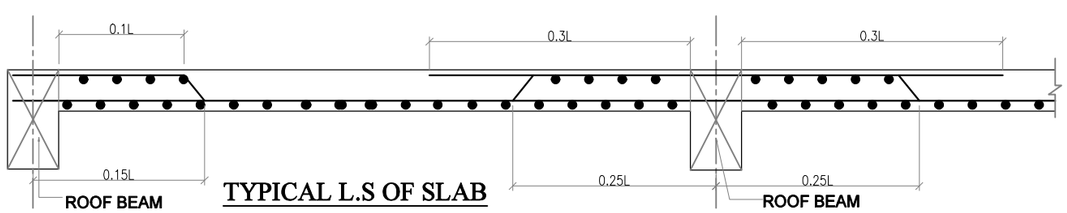
NOTE:

- COLUMN CURTAILED TO BE BEND IN TO TOP OF THE SLAB

PROVIDE Y8 @ 8" C/C AS DISTRIBUTORS WHERE EVER REQUIRED

FOR BEAM REINFORCEMENT DETAILS REFER DWG.NO : 008

FOR APPROVAL ONLY



TYPICAL L.S OF SLAB

BEAM SCHEDULE

SL.NO	NAME	SIZE
01	B1	230 x 450
02	B2	230 x 450
03	B3	230 x 530
04	B4	230 x 450

SLAB SCHEDULE

SL.NO	NAME	THICK
01	S1	150 THK.
02	S2	150 THK.

GENERAL NOTES:

REMOVAL OF FORMWORK(SHUTTERING) :

SHUTTERING OF ANY PART OF THE STRUCTURE SHALL NOT BE REMOVED UNTIL THE CONCRETE ATTAINS 70% THE SPECIFIED STRENGTH OF CONCRETE. HOWEVER THE FOLLOWING MINIMUM PERIOD (AFTER FINAL POUR) SHALL BE ALLOWED BEFORE REMOVAL OF SHUTTERING AS PER CLAUSE 11.3.1, IS 456:2000

A) VERTICAL SIDE OF SHUTTERING OF COLUMNS,WALLS

LAP JOINTS FOR REINFORCEMENT BARS :

I) AT ANY CROSS SECTION OF THE MEMBER,NOT MORE THAN 50 % THE BARS SHALL BE LAPPED.

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GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MM.
2. CONCRETE GRADE SHALL BE M25 (1:1.5:3) CONFIRMING TO IS 456:2000
3. GRADE OF REINFORCEMENT MARKED THUS (Y) SHALL BE Fe 500 CONFIRMING TO IS 1786-2008
4. CLEAR COVER FOR REINFORCEMENT
   A) BEAM = 30MM B) SLAB = 20MM
5. THIS DRG. READ IN CONJECTION WITH ARCH.DRGS.
6. STRUCTURAL ENGINEER RESPONSIBILITY IS LIMITED TO DESIGN & ISSUAL OF STRUCTURAL DRAWING ONLY
7. ONUS OF CONSTRUCTION LIES WITH CONTRACTOR/OWNER

REV.	DESCRIPTIONS	DRN	CHK	DATE
00	ISSUE FOR APPROVAL	R.P	R.M	11.08.25

PROJECT :-

PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR (PARKING) + 5 FLOORS RESIDENTIAL BUILDING WITH 15 DWELLING UNITS (HEIGHT -18.30M) AVAILING PREMIUM FSI AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR, CHENNAI. COMPRISED IN OLD S.NO.1178/1PT, 1179/PT, T.S.NO. 39, BLOCK NO: 81, WARD NO:E OF KORATTUR VILLAGE WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.

DRAWING TITLE :-

NUMERATION LAYOUT & R.C LAYOUT OF TERRACE FLOOR SLAB & BEAMS

DATE	SCALE	JOB.NO	DRG.NO
11.08.25	1 : 100	———	007

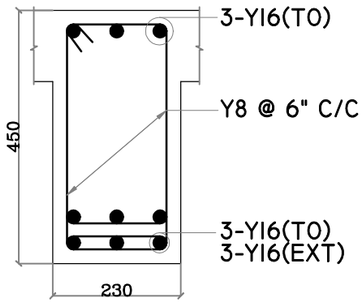
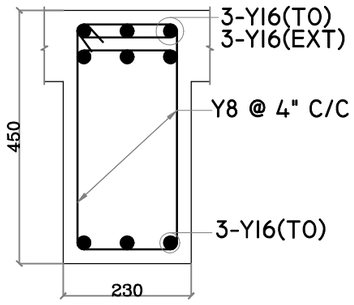
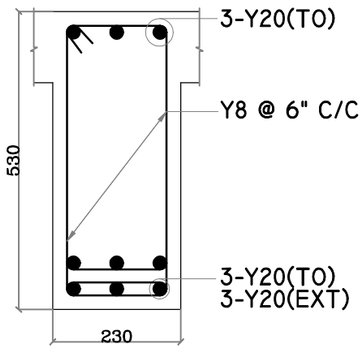
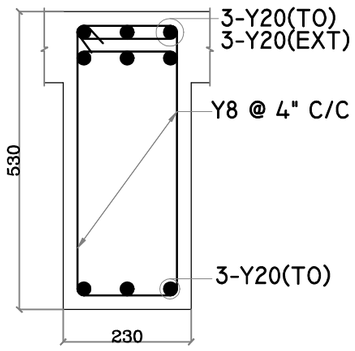
ARCHITECT / CONSULTANTS :-

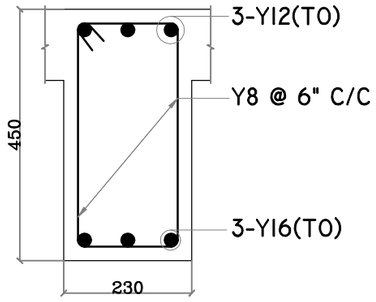
STRUCTURAL CONSULTANTS :-

AURA ENGINEERING CONSULTANTS
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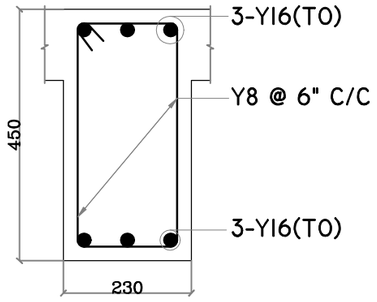
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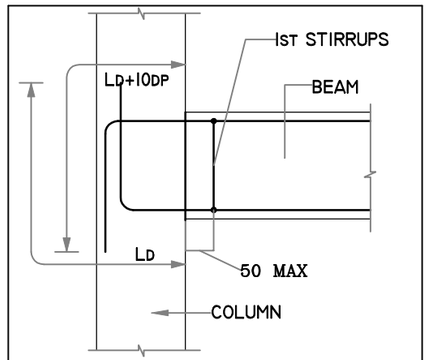
NAME	MID SPAN	END SUPPORT
B1 (230 X 450)		
B3 (230 X 530)		



C.S. OF BEAM "B2"
(230 X 450)



C.S. OF BEAM "B4"
(230 X 450)



TYP. EXTERNAL JOINT DETAIL AT
BEAM-COLUMN JUNCTION

BEAM SCHEDULE

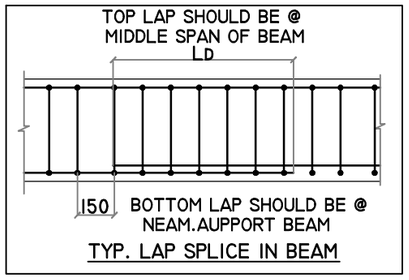
SL.NO	NAME	SIZE
01	B1	230 x 450
02	B2	230 x 450
03	B3	230 x 530
04	B4	230 x 450

GENERAL NOTES:

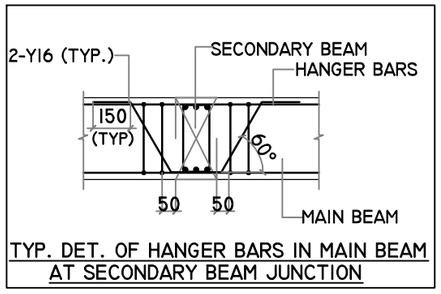
1. ALL DIMENSIONS ARE IN FOOT UNITS.
2. CONCRETE GRADE SHALL BE M25 CONFIRMING TO IS 456:2000
3. GRADE OF REINFORCEMENT MARKED THUS (Y) SHALL BE Fe 500 CONFIRMING TO IS 1786-2008
4. CLEAR COVER FOR REINFORCEMENT
   a) COLUMN = 1½" b) BEAM = 1"
   c) SLAB = ¾"
5. THIS DRG. READ IN CONJECTION WITH ARCH.DRGS.
6. STRUCTURAL ENGINEER RESPONSIBILITY IS LIMITED TO DESIGN & ISSUAL OF STRUCTURAL DRAWING ONLY
7. DEVELOPMENT LENGTH (LD) SHALL BE AS PER (SP:34-1999) TABLE BELOW:

DEVELOPMENT LENGTH FOR COLUMNS	= 40D
DEVELOPMENT LENGTH FOR BEAMS	= 50D

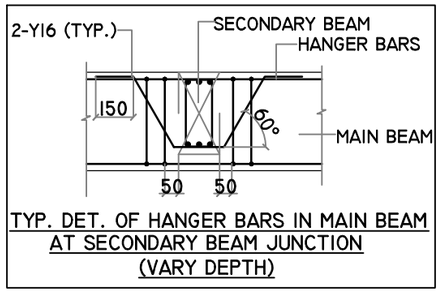
8. DETAILING OF REBARS SHALL CONFIRM TO SP-34 & IS 13920.



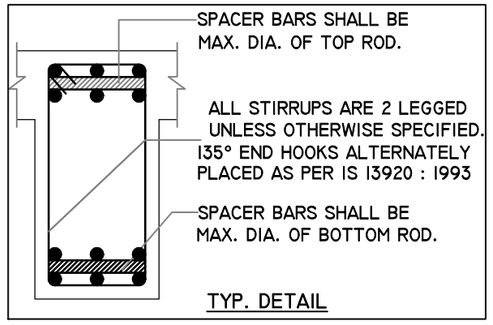
TYP. LAP SPLICE IN BEAM



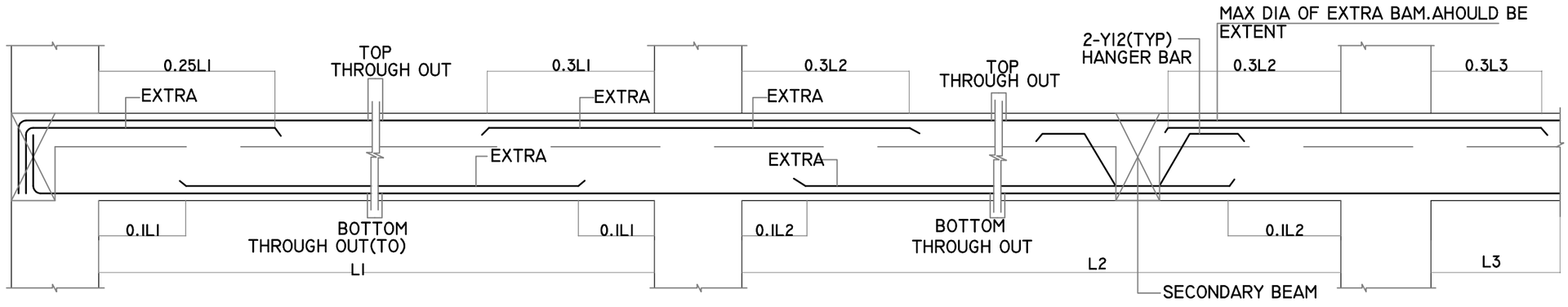
TYP. DET. OF HANGER BARS IN MAIN BEAM
AT SECONDARY BEAM JUNCTION



TYP. DET. OF HANGER BARS IN MAIN BEAM
AT SECONDARY BEAM JUNCTION
(VARY DEPTH)



TYP. DETAIL



TYPICAL L.S OF ROOF BEAM

REV.	DESCRIPTIONS	DRN	CHK	DATE
00	ISSUE FOR APPROVAL	R.P	R.M	11.08.25

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PLAN SHOWING THE PROPOSED CONSTRUCTION OF STILT FLOOR (PARKING) + 5 FLOORS RESIDENTIAL BUILDING WITH 15 DWELLING UNITS (HEIGHT -18.30M) AVAILING PREMIUM FSI AT BLOCK NO M-2, EAST AVENUE ROAD, TNHB KORATTUR SCHEME, KORATTUR, CHENNAI. COMPRISED IN OLD S.NO.1178/1PT, 1179/PT, T.S.NO. 39, BLOCK NO: 81, WARD NO:E OF KORATTUR VILLAGE WITHIN THE LIMITS OF GREATER CHENNAI CORPORATION.

DRAWING TITLE :-

R.C. DETAILS FOR ALL FLOOR BEAMS

DATE	SCALE	JOB.NO	DRG.NO
11.08.25	1 : 130	———	008

ARCHITECT / CONSULTANTS :-

STRUCTURAL CONSULTANTS :-

AURA ENGINEERING CONSULTANTS
#8, 50th St, Sarvamangala Colony, 7th Avenue,
ASHOK NAGAR, CHENNAI- 600 083.
Fixed Line :- 044 4859 7100
projects.auraengg@gmail.com
projects@auraengineers.co.in
http://auraengineers.co.in/
aura Engineeering Consultants

A3

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.