Verified RealEstate™

RE REGULATORY RECORD

RERA Document

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

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

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

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

STRUCTURAL DESIGN BRIEF

THE PROPOSED CONSTRUCTION OF RESIDENTIAL GROUP DEVELOPMENT BUILDINGS IN S.F.NOS: 45/1B2B & 46/1B1 AT KALAPATTI WEST VILLAGE, EAST ZONE, NORTH TALUK, COIMBATORE CORPORATION, COIMBATORE DISTRICT.

" SREEVATSA VRINDAVAN"

S. MURUGESH, M.E.,FIE.,
Chartered Engineer F-1279323
Structural Engineer Grade-I
(Coimbatore LPA/SE/Gr-I/061/2024/01-08-2024)

SANKAR & ASSOCIATES, ARCHITECTS & PLANNERS,
COIMBATORE-641 009

CLIENT:	M/s. SREEVATSA - VRINDAVAN	DESIGN:	G + 2 Floors	ARCHITECT & PLANNERS **SANKAR & ASSOCIATES** 27 SENGUPTA STREET, RAMNAGAR, COIMBATORE.
STRUCTURE NAME :	RESIDENTIAL BUILDING	TITLE: REPORT ON STRUCTURAL DESIGN.		
PLACE:	COIMBATORE			

Name of Project:		Name of the Structure:
RESIDENTIAL VILLA		RESIDENTIAL GROUP DEVELOPMENT
Report by:	**Checked by:**	**Approved by:**
N.GOWDAMAN	S.MURUGESH	V.P.PONNUSWAMI

DESCRIPTION OF THE PROJECT:

The Proposed structure belongs to M/s Sreevatsa Vrindavan. Purpose of this structure is to house "Residential Villa". The structure is designed for Ground floor + Two Upper floors. The structural design was carried out as per IS 456-2000. The dead load and live load are calculated based on IS 875: Part I & II. The structure was analyzed using the software STAAD-PRO V8i.

STRUCTURAL DESIGN CALCULATION

I DESIGN PARAMETERS:

1. This structure is designed for Ground floor + Two Upper floors.
2. SBC Adopted as 310 KN/sqm. (As per soil test Report provided)

Table-1 Allowable Safe Bearing Capacity

Trial Pit No.	Depth Below EGL (m)	Type of Strata	N Value	SBC (kN/m²) B=1.5m
TP1, TP4 & TP6	1.80	DG / VSR	>50	310
TP2, TP3, TP5, TP7 & TP8	1.50			270

GEOCARE Engineering Consultancy CBE-468

- 4 -

Project Code: 092532

GEOCARE ENGINEERING CONSULTANCY — GEOTECHNICAL INVESTIGATION

CONCLUSION & RECOMMENDATION

- The subsoil consists of Top Filled Soil followed by Clay, Clayey Gravel, Sandy Gravel and underlain by DG / VSR at explored depth.
- Based on the investigation on the subsoil profile, open foundation of **isolated / combined footing** with tie beam is recommended.
- The recommended SBC for depth of foundation **1.80m** below EGL is **310kN/m²** considering TP1, TP4 & TP6 for a footing width of **1.50m.**
- The recommended SBC for depth of foundation **1.50m** below EGL is **270kN/m²** considering TP2, TP3, TP5, TP7 & TP8 for a footing width of **1.50m.**

3. Concrete grade adopted:
   For Footing & Columns : M25
   For Beams & Slabs : M25
   Grade of steel adopted : Fe 500.
4. Floor height : 3.35m (Typical)

S. MURUGESH, M.E.,FIE.,
Chartered Engineer F-1279323
Structural Engineer Grade-I
(Coimbatore LPA/SE/Gr-I/061/2024/01-08-2024)

CLIENT:	M/s. SREEVATSA - VRINDAVAN	DESIGN:	G + 2 Floors	ARCHITECT & PLANNERS **SANKAR & ASSOCIATES** 27 SENGUPTA STREET, RAMNAGAR, COIMBATORE.
STRUCTURE NAME :	RESIDENTIAL BUILDING	TITLE: REPORT ON STRUCTURAL DESIGN.		
PLACE:	COIMBATORE			

II LOAD DETAILS:

DEAD LOAD:

1. Self weight of slab (Assumed as 130mm Tk.) - 3.25 KN/m^2.
2. Self weight of slab (Assumed as 150mm Tk.) - 3.750 KN/m^2.

SUPER IMPOSED DEAD LOAD:

1. Floor finish - 1.5 KN/m^2.
2. Unit wt. of brick * Tk of wall * Ht of wall
   (19 x 0.23 x (0.80 x (3.10-0.38)) - 10.00 KN/m.

SUPER IMPOSED LIVE LOAD:

1. All Rooms and Kitchen - 2 KN/m^2
2. Terrace Floor - 1.5 KN/m^2

III LOAD COMBINATION

Loads considered for calculation of horizontal seismic load = DL + 25 % LL

Load case:

1. Dead Load (DL)
2. Live Load (LL)

Load combination:

1. LOAD COMB (1.0 DL + 1.0 LL)
2. LOAD COMB (1.2 DL + 1.2 LL)
3. LOAD COMB (1.5 DL + 1.5 LL)

Location and thickness of walls as depicted in the architectural drawings were considered for loads at appropriate locations in the analysis.

IV ANALYSIS:

The analysis is performed using software STAAD Pro V8i.

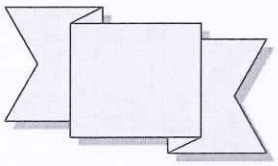
V DESIGN OF STRUCTURE:

From analysis the columns and beams were grouped as shown in centerline drawing depending on the forces. The footing, column and beams were designed for the maximum forces in-group as per IS456-2000.

VI STRUCTURAL ARRANGEMENT:

Typical Design Calculation for Column, footing , Beam and Slab in Annexure (II)

ANNEXURE – I



TYPICAL COLUMN DESIGN

Input Data

Breadth	b	=	300.00	mm
Depth	D	=	450.00	mm
Clear cover	cc	=	40.00	mm
Effective cover	d'	=	56.00	mm
Effective Breadth	b'	=	244.00	mm
Effective Depth	D'	=	394.00	mm
Length of column	L	=	3.20	m
Depth of Beam/Slab framing into coln (Major)	Bd	=	0.60	m
Depth of Beam/Slab Framing into coln (Minor)	Bd	=	0.60	m
Clear length in major axis	Lc or Lo	=	2.60	m
Clear height in minor axis	Lc or Lo	=	2.60	m
Effective length factor	β	=	0.80	
Effective length of column	Leff (x-dir)	=	2.08	m
Effective length of column	Leff (y-dir)	=	2.08	m
Axial Load (Factored)	N	=	750.00	KN
Moment about major axis (Factored)	Mx	=	4.00	KN-m
Moment about minor axis (Factored)	My	=	12.00	KN-m
Characteristic strength of concrete	fck	=	25.00	N/mm^2
Characteristic strength of steel	fy	=	500	N/mm^2

Design Calculations:

Step1: Check for Slenderness ratio : Leff/D = 4.62 <12

Check for Slenderness ratio : Leff/b = 6.93 <12

Design a Short Column

	eax	=	0.00	mm
	eay	=	0.00	mm
Slenderness limits for column Lo < 60 b	2.60 m	<	18.00	m

Step:2 Check for moment due to minimum eccentricity

Minimum Eccentricity (L/500 + d or b/30) or 20 (whichever	ex	=	20.00	mm
	ey	=	15.20	mm
A.) Moments due to Min eccentricity	Mex	=	15.00	KN-m
	Mey	=	11.40	KN-m

Step:3 Calculation of Additional Moments

Assume Percentage of Reinforcement	p	=	1.20	%
Reinforcement Equally Distributed on	Four Face			
	Puz	=	2126.25	KN
	d'/d along x-dir	=	0.15	
	d'/b along y-dir	=	0.20	
	Along x-direction			
	k1	=	0.196	
	k2	=	0.256	



CLIENT:	M/s. SREEVATSA - VRINDAVAN	DESIGN:	G + 2 Floors	ARCHITECT & PLANNERS **SANKAR & ASSOCIATES** 27 SENGUPTA STREET, RAMNAGAR, COIMBATORE.
STRUCTURE NAME :	RESIDENTIAL BUILDING	TITLE:	REPORT ON	
PLACE:	COIMBATORE	STRUCTURAL DESIGN.		

Along y-direction

	k1	=	0.184
	k2	=	0.04
Pb=(k1 + k2 p/Fck)Fck b d)	Pbx	=	702.97 KN
	Pby	=	627.48 KN
k = (Puz - Pu)/(Puz - Pb)	Kx	=	0.97
	Ky	=	0.92
B.) Additional Moments	Max	=	0.00 KN-m
	May	=	0.00 KN-m

Step:4 Total Moments for which the column is to be designed are

D.) Final Moment	**Mux**	=	**15.00** KN-m
	Muy	=	**12.00** KN-m

Step:5

Pu / Fck bD = 0.22

p/Fck = 0.05

*Refer CHART 49 From SP 16 : 1980 for red values

Pu / Fck bD= 0.22 p/Fck= 0.048 d'/D = 0.15

Mux1 / Fck bD^2 = 0.12

Mux1 = **182.25** KN-m

*Refer CHART 50 From SP 16 : 1980 for red values

Pu / Fck 0.22 p/Fck= 0.048 d'/b = 0.20

Muy1 / Fck bD^2 = 0.11

Muy1 = **111.38** KN-m

Mux/Mux1 = 0.08

Muy/Muy1 = 0.11

Pu/Puz = 0.35

αn = 1.25

(Mux/Mux1)^αn + (Muy/Muy1)^αn = 0.10 <1

Step:6 Longitudinal Reinforcem Area of steel Required Asc = 1620.00 mm^2

Larger dia		Smaller dia		
Select Bar dia	16 mm	Select Bar dia	=	12 mm
No. of bars Req	8.1	No. of bars Req	=	3.7
No. of bars Prov	6	No. of bars Prov	=	4
Area Prov.	1206.37	Area Prov.	=	452

Area of Steel Provided Asc (pro) = 1658.76 mm^2

Percentage of Steel Provided = 1.23 %

Provide 6Y16+ 4Y12 as longitudinal reinforcement

Step:7 Lateral Ties

1. Pitch: (take whichever is lesser)

i. 16x smaller dia of main steel = 175.00 mm

ii. 200 mm = 200.00 mm

Pi = 175.00 mm

2. Diameter (whichever is greater)

i. 1/4 x largest dia of main steel = 4.00 mm

ii. 8mm = 8.00 mm

Dia = 8.00 mm

Therefore provide Y8 @175c/c as Lateral ties.

SANKAR & ASSOCIATES COIMBATORE

CLIENT:	M/s. SREEVATSA - VRINDAVAN	DESIGN:	G + 2 Floors	ARCHITECT & PLANNERS SANKAR & ASSOCIATES 27 SENGUPTA STREET, RAMNAGAR, COIMBATORE.
STRUCTURE NAME :	RESIDENTIAL BUILDING	TITLE:	REPORT ON	
PLACE:	COIMBATORE	STRUCTURAL DESIGN.		

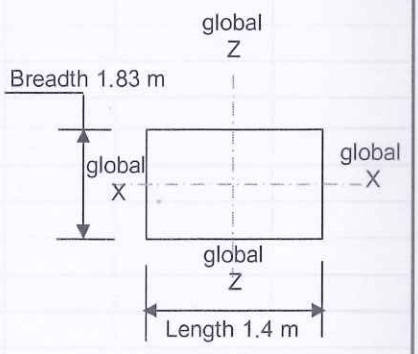
TYPICAL FOOTING DESIGN

COLUMN

Length Ll, dim. || X axis) =	450	mm
Breadth (B, dim. || Z axis) =	300	mm

FOOTING

Foot length (L, dim. || X axis) =	1.40	m
Foot Breadth (B, dim. || Z axis) =	1.83	m
Thickness of footing (t) =	500	mm
Clear cover of footing =	50	mm
Main bar dia of footing =	12	mm
Effective depth of footing =	**444**	mm
Selfweight of the footing =	**32.03**	KN
Area of Footing(A) =	**2.56**	m^2
Sect mod of foot about Z axis (Zz) =	**0.78**	m^3
Sec mod of foot about X axis (Zx) =	**0.60**	m^3



Footing Dimensions

MATERIALS OF CONSTRUCTION

Grade of concrete f_{ck} =	25	N/mm^2
Grade of steel f_y =	500	N/mm^2

CHECK FOR GROSS BEARING PRESSURE

Safe NET bearing pressure =	750	KN/m^2
Safe gross bearing pr. =	**786.00**	KN/m^3
Unfactored load case number =	0	
Axial load from output (P1) =	550.00	KN
Moment about Z axis (M_z) =	6.00	KN-m
Moment about X axis (M_x) =	14.00	KN-m
Depth of top of foot. from ground =	2	m
Unit wt of soil =	18	KN/m^3
Weight of soil retained above foot =	**39.50**	KN
P = (P1+soil+foot self wt) =	**550.00**	KN
Maximum bearing pressure =	**285.27**	KN/m^2
Minimum bearing pressure =	**183.58**	KN/m^2

(net pr. + depth of foot * soil unit wt)

$$\frac{P}{A} \pm \frac{M_y}{Z_y} \pm \frac{M_x}{Z_x}$$

Hence footing is safe against max gross bearing pr.

DESIGN FORCES

Factored load comb. no.	0	
Axial load:(P_u) =	825	**KN**
Moment about Z axis (M_{uz}) =	9	**KN-m**
Moment about X axis (M_{ux}) =	21	**KN-m**

Maximum effective soil pressure $p_{e\,max}$ = (Pu/Area+ Muz/Zz + Mux/Zx) = **368.66** KN/m^2

212.3552124

Minimum effective soil pressure $p_{e\,min}$ = (Pu/Area - Muz/Zz - Mux/Zx) = **275.37** KN/m^2

Design of footing is done using above maximum effective soil pressure

SANKAR & ASSOCIATES ★ COIMBATORE ★

CLIENT:	M/s. SREEVATSA - VRINDAVAN	DESIGN:	G + 2 Floors	ARCHITECT & PLANNERS **SANKAR & ASSOCIATES** 27 SENGUPTA STREET, RAMNAGAR, COIMBATORE.
STRUCTURE NAME :	RESIDENTIAL BUILDING	TITLE:	REPORT ON STRUCTURAL DESIGN.	
PLACE:	COIMBATORE			

CALCULATION FOR BOTTOM STEEL

Mu about X1 X1 = (pe max x length^2/2)= **41.59** KN-m per meter

$$A_{st} = \frac{0.5 f_{ck}}{f_y}\left[1 - \sqrt{1 - \frac{4.6 M_u}{f_{ck} b d^2}}\right] bd$$

Mu limit = **524.48** KN-m per meter

The section is singly reinforced

Hence, Ast = **218.120** mm^2

Min Ast = **532.800** mm^2 (0.12 % for slab, cl 26.5.2.1)

Spacing = **150.00** mm (considering max of above two calculated values of Ast)

pt provided = **0.17** %

Hence provide 12 mm dia bar @ 150 mm c/c parellel to length of footing (|| to Z)

Mu about N1 N1 = (pe max x length^2/2)= **107.87** KN-m per meter

Calc. Ast = **577.595** mm^2 The section is singly reinforced

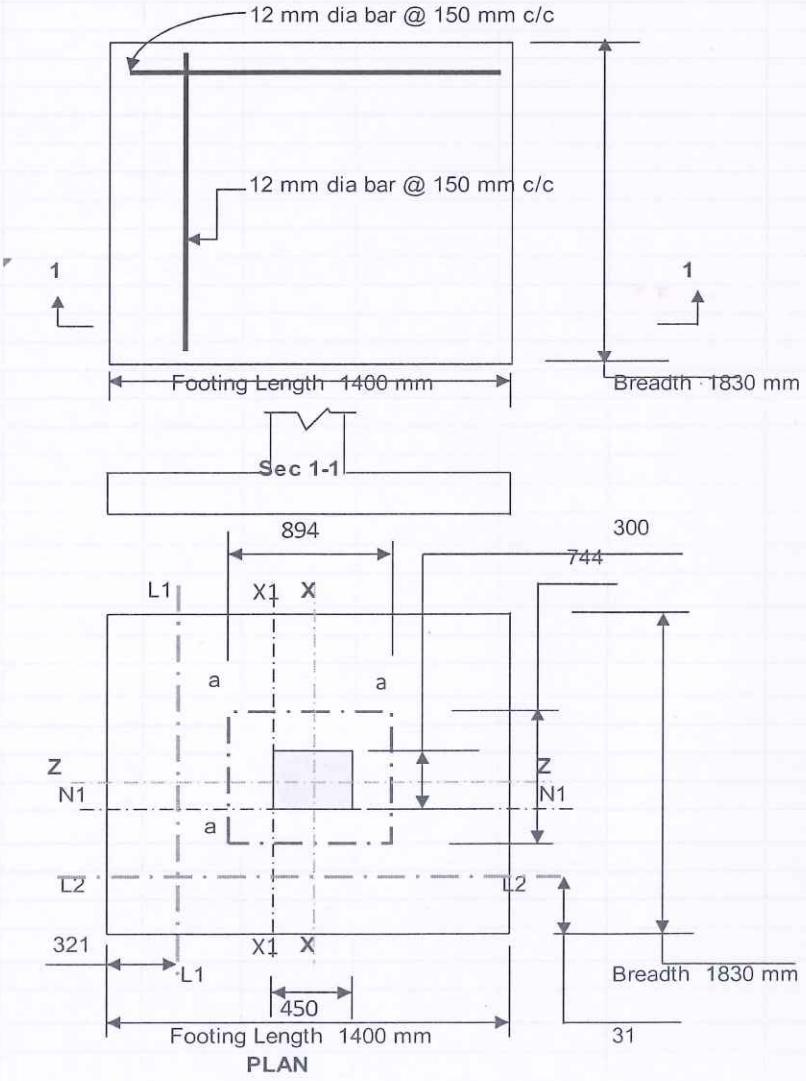
Min Ast = **600** mm^2 (0.12 % for slab, cl 26.5.2.1)

Spacing = **150.00** mm (considering max of above two calculated values of Ast)

pt provided = **0.17** %

Hence provide 12 mm dia bar @ 150 mm c/c parellel to breadth of footing (|| to X)

Arrangement of bottom reinforcement as per above design is shown below



SANKAR & ASSOCIATES ★ COIMBATORE ★

CLIENT:	M/s. SREEVATSA - VRINDAVAN	DESIGN:	G + 2 Floors	ARCHITECT & PLANNERS SANKAR & ASSOCIATES 27 SENGUPTA STREET, RAMNAGAR, COIMBATORE.
STRUCTURE NAME :	RESIDENTIAL BUILDING	TITLE:	REPORT ON	
PLACE:	COIMBATORE		STRUCTURAL DESIGN.	

CHECK FOR ONE WAY SHEAR :

One way shear at critical section L1- L1

Distance of critical sec. from edge of footing : **0.321** m

Shear force Vs =pe max x 0.321 x 1m width of footing = **118.340** KN

Shear stress $\tau_v = Vs/bd$ = **0.267** N/mm^2

τ_c = **0.30** N/mm^2

tv < tc hence O.K.

One way shear at critical section L2- L2

Distance of critical sec. from edge of footing : **0.031** m

Shear force Vs =pe max x 0.031 x 1m width of footing = **11.428** KN

Shear stress $\tau_v = Vs/bd$ = **0.026** N/mm^2

τ_c = **0.30** N/mm^2

tv < tc hence O.K.

CHECK FOR TWO WAY SHEAR

Ref. cl 34.2.4 and cl.31.6.3 of IS 456 : 2000

Allowable shear stress $\tau_{v\ allowable} = k_s \tau_c$

$k_s = (0.5 + bc)$ = **1.26503** >1

Hence, k_s= **1**

$\tau_c = 0.25 (fck)^{0.5}$ = **1.11803** N/mm^2

$\tau_{v\ allowable} = k_s \times \tau_c$ = **1.11803** N/mm^2

Shear force Vs = 368.66 (1.4 x 1.83 - 0.894 x 0.744) = **579.79** KN

Length of critical section = 2 x (894 + 744) = **3276** mm

Area of the critical section (length of critical sec x eff. d) = **1454544** mm^2

Hence shear stress τ_v = **0.399** N/mm^2

tv < allowable hence O.K.

SANKAR & ASSOCIATES ★ COIMBATORE ★

CLIENT:	M/s. SREEVATSA - VRINDAVAN	DESIGN:	G + 2 Floors	ARCHITECT & PLANNERS **SANKAR & ASSOCIATES** 27 SENGUPTA STREET, RAMNAGAR, COIMBATORE.
STRUCTURE NAME :	RESIDENTIAL BUILDING	TITLE: REPORT ON STRUCTURAL DESIGN.		
PLACE:	COIMBATORE			

TYPICAL BEAM DESIGN

SECTION DETAILS — Floor Level : Ground Floor — **B124**

Width of the beam	B	=	200.00	mm
Depth of the beam	D	=	450.00	mm
Clear cover of the beam	C_v	=	25	mm
Grade of concrete	f_{ck}	=	25	N/mm^2
Grade of steel	Fy	=	500	N/mm^2
Effective length of the beam	L	=	4	m

FORCE DETAILS FROM ETAB :

Max. sagging moment of the beam	=	70.00	kN m
LHS Support moment of the beam	=	89.00	kN m
RHS Support moment of the beam	=	75.00	KN m
Torsional Moment	=	0.05	KN m
Shear force at LHS of the beam	=	160.00	KN
Shear force at RHS of the beam	=	168.00	KN
Shear force at concentrated load location	=	0.00	KN

Design of beam at LHS section

Tension Reinf.

Bending Mt $(Mu)_L$	=	89.10	kN m
Breath of the beam (	=	200	mm
Effective cover $(d')_L$	=	63.5	mm
Effective depth $(d)_L$	=	386.50	mm
x_u max/d	=	0.4560	
$K_L = M_{UL}/(bd^2f_{ck})$	=	0.1193	(2.983)
K'L	=	0.1338	

Hence comp. reinf. NOT reqd.

Eff. Cover d' (Comp)	=	63.5	mm
A_{st} lim	=	733	mm^2
ΔA_{st}	=	0	mm^2
fsc	=	0.0	N/mm^2
A_{st} reqd	=	634	mm^2

Layer	1st	2nd	3rd
Dia of reinf	16	16	12
Reqd No.	3.2	1.16	0
Provided	2	2	0
Ast prov.	402	402	0

A_{st} provided = 804 mm^2

Compression Reinf.

A_{st} required	=	0	mm^2
A_{st} min.	=	402	mm^2

Layer	1st	2nd	3rd
Dia of reinf	16	16	12
Reqd No.	2	0	0
Provided	2	2	0
Ast prov.	402	0	0

A_{st} provided = 402 mm^2

Shear Check

Shear force V_{UR}	=	160.00	kN
$\zeta_v = V_{uL}/bd$	=	2.07	N/mm^2
% of reinf provided	=	1.04	%
Design Stress	=	0.65	N/mm^2
ζ_c max	=	3.10	N/mm^2

2 Legged 10 mm Dia stirrups

Design Shear reinf.

Reqd. stirrup spac.	=	240.78	mm
Proived stirrup spac.	=	150	mm

Design of beam at Max sagging section

Tension Reinf.

Bending Mt $(Mu)_M$	=	70.00	kN m
Breath of the beam (	=	200	mm
Effective cover $(d')_M$	=	63.5	mm
Effective depth $(d)_M$	=	386.50	mm
x_u max/d	=	0.4560	
$K_M = M_{UM}/(bd^2f_{ck})$	=	0.0937	(2.343)
K'M	=	0.1338	

Hence comp. reinf. NOT reqd.

Eff. Cover d' (Comp)	=	43.0	mm
A_{st} lim	=	733	mm^2
ΔA_{st}	=	0	mm^2
fsc	=	0.0	N/mm^2
A_{st} reqd	=	475	mm^2

Layer	1st	2nd	3rd
Dia of reinf	16	16	12
Reqd No.	2.4	0.37	0
Provided	2	2	0
Ast prov.	402	402	0

A_{st} provided = 804 mm^2

Compression Reinf.

A_{st} required	=	0	mm^2
A_{st} min.	=	201	mm^2

Layer	1st	2nd	3rd
Dia of reinf	16	16	12
Reqd No.	1	0	0
Provided	2	0	0
Ast prov.	402	0	0

A_{st} provided = 402 mm^2

Torsional Reinforcement

Torsional Moment	=	0.05	kNm
ζ_{ve}	=	2.08	N/mm^2
ζ_c max	=	3.10	N/mm^2
M_t	=	0.10	kNm
M_{e2}	=	0.00	kNm
Stirrup spacing reqd	=	239.78	mm
Sideface. Reinf reqd	=	0.00	mm^2
Provide 0 Nos of		12	mm on EVF
Ast prov.	=	0.0	mm^2

Design of beam at RHS section

Tension Reinf.

Bending Mt $(Mu)_R$	=	75.10	kN m
Breath of the beam (	=	200	mm
Effective cover $(d')_R$	=	63.5	mm
Effective depth $(d)_R$	=	386.50	mm
x_u max/d		0.4560	
$K_R = M_{UR}/(bd^2f_{ck})$	=	0.1005	(2.514)
K'R	=	0.1338	

Hence comp. reinf. NOT reqd.

Eff. Cover d' (Comp)	=	63.5	mm
A_{st} lim	=	733	mm^2
ΔA_{st}	=	0	mm^2
fsc	=	0.0	N/mm^2
A_{st} reqd	=	515	mm^2

Layer	1st	2nd	3rd
Dia of reinf	16	16	12
Reqd No.	2.6	0.57	0
Provided	2	2	0
Ast prov.	402	402	0

A_{st} provided = 804 mm^2

Compression Reinf.

A_{st} required	=	0	mm^2
A_{st} min.	=	402	mm^2

Layer	1st	2nd	3rd
Dia of reinf	16	16	12
Reqd No.	2	0	0
Provided	2	2	0
Ast prov.	402	0	0

A_{st} provided = 402 mm^2

Shear Check

Shear force V_{UL}	=	168.00	kN
$\zeta_v = V_{uL}/bd$	=	2.17	N/mm^2
% of reinf provided	=	1.04	%
Design Stress	=	0.65	N/mm^2
ζ_c max	=	3.10	N/mm^2

2 Legged 10 mm Dia stirrups

Design Shear reinf.

Reqd. stirrup spac.	=	224.41	mm
Proived stirrup spac.	=	150	mm

CHECK FOR DEFLECTION : As per IS 456

Provided area of reinforcement	=	804	
Mu/bd^2	=	2.34	
Actual Span / Effective depth Ratio	=	10.35	
Support Condition	=	Continuous	
Design service stress	=	171.16	
Modification factor - Tension reinf.	=	1.34	
Modification factor - Comp. reinf.	=	1.15	
Allowable Span /Effective depth Ratio	=	39.87	

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

Beam No	Size	Bottom steel		Top steel			Stirrups		Side Face Reinf.
		Straight	Curtail	Middle	LHS	RHS	Ends	Mid	
RB24	200 x 450	2Y16+2Y16	---	2Y16	2Y16+2Y16	2Y16+2Y16	2L Y10/150	2L Y10/200	

SANKAR & ASSOCIATES ★ COIMBATORE ★

CLIENT:	M/s. SREEVATSA - VRINDAVAN	DESIGN:	G + 2 Floors	ARCHITECT & PLANNERS **SANKAR & ASSOCIATES** 27 SENGUPTA STREET, RAMNAGAR, COIMBATORE.
STRUCTURE NAME :	RESIDENTIAL BUILDING	TITLE:	REPORT ON STRUCTURAL DESIGN.	
PLACE:	COIMBATORE			

TYPICAL SLAB DESIGN

Slab Number : F15 Floor level : Ground Floor Reference grid :

SPANS :

Shorter span c/c w.r.to beam	B	=	3.50	m
Longer span c/c w.r.to beam	L	=	4.00	m
Width of support - shorter span - Left	bxl	=	450	mm
Width of support - shorter span - Right	bxr	=	450	mm
Width of support - longer span - Left	byl	=	600	mm
Width of support - longer span - Right	byr	=	450	mm
Clear Cover of slab	cv	=	20	mm
Ratio Ly / Lx	ly/lx	=	1.15	< 2

LOAD CALCULATION :

Assume the thickness of the slab	=	125.00	mm
Effective Depth of the of the slab	=	100.00	mm
Self Weight of slab	=	3.125	KN / m^2
Weathering course / Floor finishing	=	2.000	KN / m^2
Wall load	=	0.000	KN / m^2
Live Load	=	3.000	KN / m^2
D.L+L.L	=	8.125	KN / m^2
1.5D.L+1.5L.L	=	12.188	KN / m^2

DESIGN AS TWO WAY SLAB

Support Condition THREE EDGES DICONTINUOUS (ONE LONG. EDGE CONT.)

EFFECTIVE SPANS :

Shorter span: (Lx)

Clear span + effective depth	=	3.15	m
Center to centre of supports	=	3.50	m
Effective span	=	3.50	m

Longer span: (Ly)

Clear span + effective depth	=	3.58	m
Center to centre of supports	=	4.00	m
Effective span	=	3.58	m
Aspect Ratio Ly / Lx	=	1.02	< 2

As per IS 456

+ ve Alpha - x	=	0.044
- ve Alpha - x	=	0.059
+ ve Alpha - y	=	0.044
- ve Alpha - y	=	0.000

Compressive Stength of Concrete	=	25.00	N/mm^2
Grade of steel	=	500.00	N/mm^2

BENDING MOMENTS:

EFFECTIVE DEPTH OF SLAB

Positive moment along Shorter dir.	Mx +ve =	6.57	KNm / m	dx+	=	100.00	mm	Kx+	=	0.026	Zx+	=	95.000 mm
Negative moment along Shorter dir.	Mx -ve =	8.81	KNm / m	dx-	=	101.00	mm	Kx-	=	0.035	Zx-	=	95.950 mm
Positive moment along Longer dir.	My +ve =	6.57	KNm / m	dy+	=	90.00	mm	Ky+	=	0.032	Zy+	=	85.500 mm
Negative moment along Longer dir.	My -ve =	0.00	KNm / m	dy-	=	101.00	mm	Ky-	=	0.000	Zy-	=	95.950 mm

REQUIRED AREA OF STEEL :

Ast req. at midspan along x- dir.	ast +ve x =	155.88	mm^2
Ast req. at midspan along y- dir.	ast +ve y =	174.58	mm^2
Ast req. at support along x- dir.	ast -ve x =	209.17	mm^2
Ast req. at support along y- dir.	ast -ve y =	0.00	mm^2
Minimum Ast required	ast min =	150.00	mm^2

REQUIRED SPACING OF STEEL:

10	mm dia at midspan along x- dir.	=	504	mm c/c
10	mm dia at midspan along y- dir.	=	450	mm c/c
8	mm dia at support along x- dir.	=	240	mm c/c
8	mm dia at support along y- dir.	=	335	mm c/c
8	mm dia for distribution steel	=	335	mm c/c
0	mm dia for top of mid span	=	100	mm c/c

PROVIDED SPACING OF STEEL

Bottom reinforcement along x- dir.	Y	10	150	mm c/c
Bottom reinforcement along y- dir.	Y	10	150	mm c/c
Top reinforcement along x- dir.	Y	8	150	mm c/c
Top reinforcement along y- dir.	Y	8	150	mm c/c
Distribution Steel	Y	8	200	mm c/c

CHECK FOR DEFLECTION :

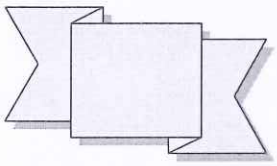
Provided Ast (Bottom)	=	523.60	mm^2
Provided Ast (Top)	=	0.00	mm^2
Mu/bd^2	=	0.66	
Actual Span / Effective depth Ratio	=	35.00	
Design service stress	=	86.34	
Modification factor - Tension reinf.	=	2.00	
Modification factor - Comp. reinf.	=	1.00	
Allowable Span /Effective depth Rat	=	46.00	

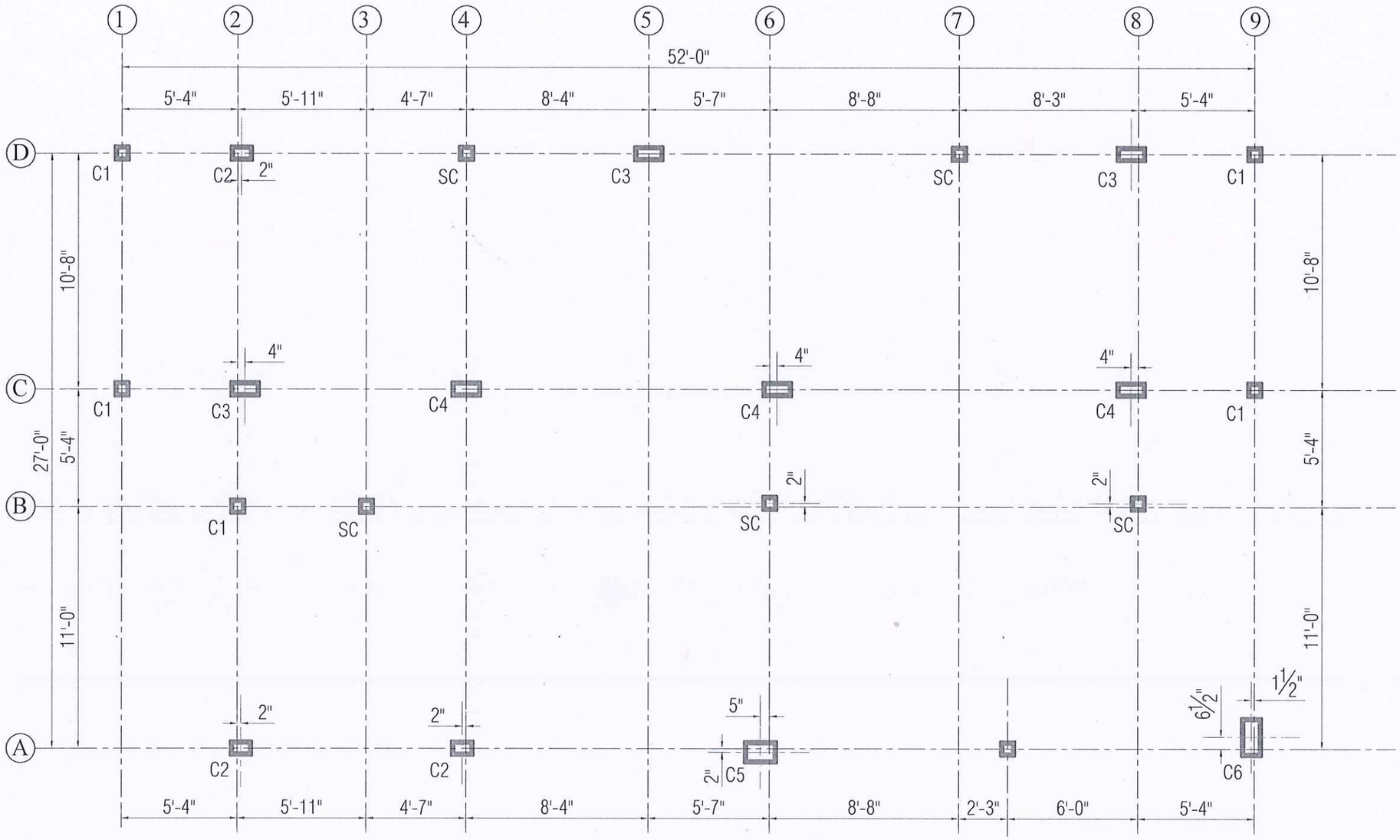
<<<< Hence SAFE in Deflection >>>>

SANKAR & ASSOCIATES COIMBATORE

CLIENT:	M/s. SREEVATSA - VRINDAVAN	DESIGN:	G + 2 Floors	ARCHITECT & PLANNERS SANKAR & ASSOCIATES 27 SENGUPTA STREET, RAMNAGAR, COIMBATORE.
STRUCTURE NAME :	RESIDENTIAL BUILDING	TITLE:	REPORT ON STRUCTURAL DESIGN.	
PLACE:	COIMBATORE			

ANNEXURE – II





CENTRE LINE LAYOUT

SCHEDULE OF COLUMNS	
TYPE	COLUMN SIZE
C1	0'-8" x 0'-8"
C2	0'-8" x 1'-0"
C3	0'-8" x 1'-4"
C4	0'-8" x 1'-4"
C5	1'-0" x 1'-6"
C6	1'-0" x 1'-9"
SC	0'-8" x 0'-8"

NOTES :

1. DIMENSIONS ARE NOT TO BE SCALED.
2. ALL DIMENSIONS ARE TO BE VERIFIED PROPERLY AT SITE.
3. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.
4. ℄ DIA OF TOR STEEL
5. CLEAR COVER TO MAIN REINFORCEMENT(MILD EXPOSURE)
   a) FOR COLUMN = 40mm
   b) FOR FOOTING = 50mm
6. LAPPING:
   a) LAP LENGTH SHALL BE = 50 x DIA OF BAR.
   b) DEVELOPMENT LENGTH SHALL BE = 50 x DIA OF BAR.
7. PROVIDE CHAIR RODS WHEREVER NECESSARY
8. PROVIDE SPACER RODS OF 25mm Ø (min) AT 1000mm C/C
9. GRADE OF CONCRETE IS M25
10. GRADE OF REINFORCING STEEL IS Fe 500
10. ADOPTED SBC OF SOIL = 310 KN / Sqm. AS PER SOIL REPORT.
11. MINIMUM DEPTH OF FOUNDATION = 1.8m BELOW NGL
12. ALL THE LEVELS MENTIONED ARE FROM THE F.F.L. OF GROUND + 2 FLOOR

REV.,	DESCRIPTION	REV BY.,	DATE	APP BY.,

RELEASE STATUS	DATE	SIGNATURE
PRELIMINARY/ TENDER		
FOR CONSTRUCTION		

IMPORTANT NOTES:-

- ONLY APPROVED DRAWINGS (i.e., SEALED AND DULY SIGNED AS GOOD FOR CONSTRUCTION) MUST BE USED FOR EXECUTION OF WORKS AT SITE.
- ANY DISCREPANCY IN THE DRAWING SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF STRUCTURAL ENGINEER.
- ANY MODIFICATION IN THE DESIGNER'S STRUCTURAL SYSTEM BEFORE/AFTER COMPLETION OF WORK SHALL BE IMMEDIATELY INTIMATED TO THE CONSULTANT.
- CLIENT / BUILDER ENSURES THAT STRICT ADHERENCE TO THE GOOD CONSTRUCTION PRACTICE IS FOLLOWED AT SITE AS PER THE RELEVANT B.I.S. CODES.
- STRUCTURAL ENGINEER'S RESPONSIBILITY IS LIMITED TO DESIGNING & ISSUAL OF STRUCTURAL DRAWINGS ONLY.

S. MURUGESH, M.E.,FIE.,
Chartered Engineer F-1279323
Structural Engineer Grade-I
STRUCTURAL ENGINEER (Coimbatore LPA/SE/Gr-I/061/2024/01-08-2024)

* ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.

* THE COPYRIGHT OF THIS DRAWING AND OF ALL ENCLOSURES ENTRUSTED TO THE RECIPIENT PERSONALLY REMAINS THE EXCLUSIVE PROPERTY OF THE FIRM, WITH OUT OUR WRITTEN CONSENT THEY SHOULD NOT BE COPIED OR REPRODUCED OR DELIVERED OR MADE KNOWN TO THIRD PARTY.

SREEVATSA - VRINDAVAN
@ COIMBATORE

CLIENT:-

REFERENCE:
This Drg. is Prepared Based On The Source Drg.
1. Drg. no. Dt. OF

N
NP

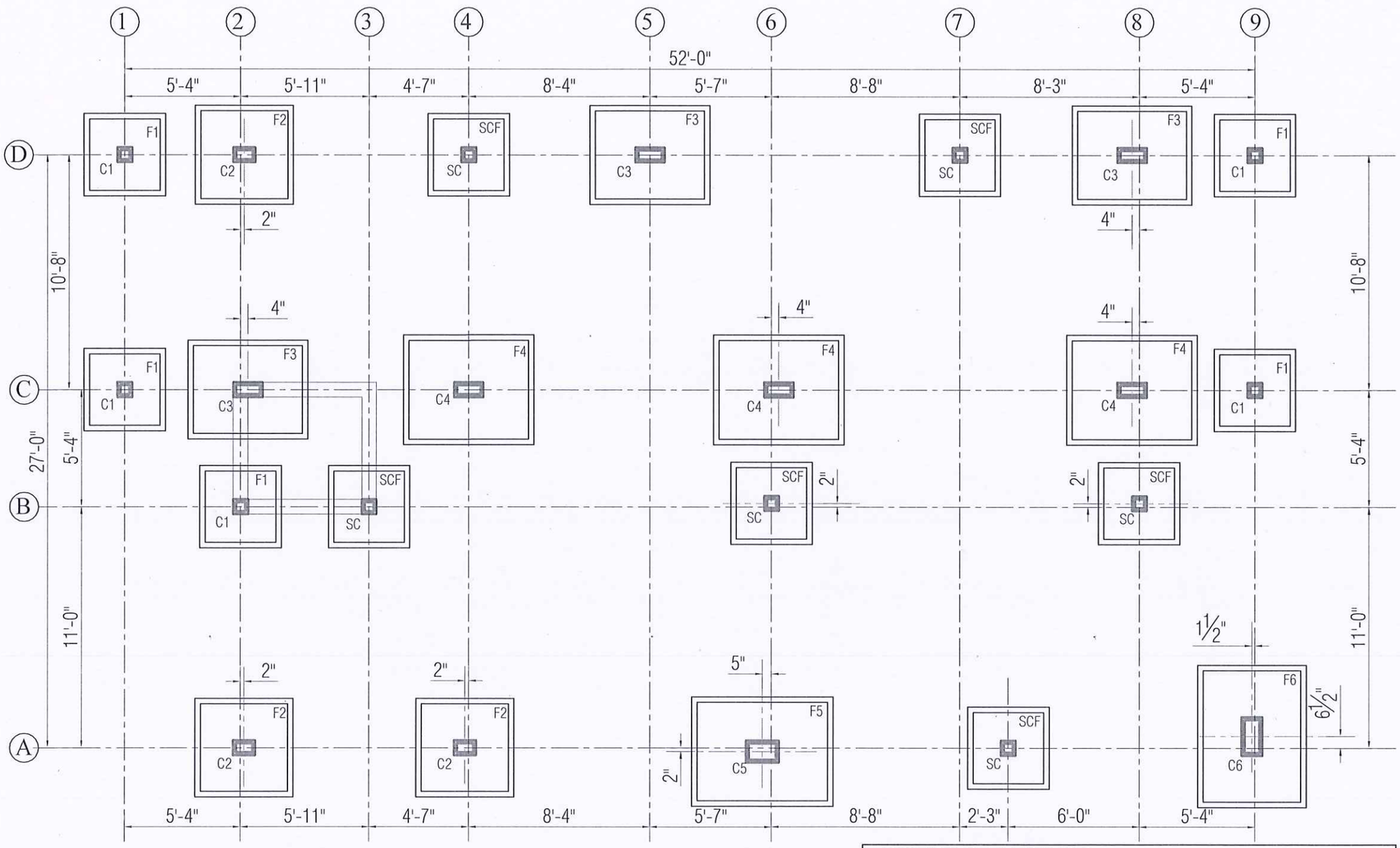
BUILDING: EAST FACING VILLA-(TYPE-07)

DETAIL: CENTRE LINE LAYOUT

SCALE: 1 : 8'-0"	JOB NO: 26-SREL-IH-01	REV	DRN BY:	E.S
DATE: 13.06.26	DRG NO: ST-CL-001		CKD BY:	GOWDAMAN
	SHEET NO:		APD BY:	S.M

sankar & associates
architecture . engineering . interior design
27, Senguptha Street, Ramnagar,
Coimbatore - 641009, India.
Phone : +91-422-2230890
Branch: 8, 34th Street, Near Pudhoor School,
Ashok Nagar, Chennai - 600 083
E-mail : admin@sankarassociates.in
Website : www.sankarassociates.in

A3 - P



SCHEDULE OF FOOTING

TYPE	FOOTING SIZE	PIT SIZE
F1	3'-3" x 3'-3"	3'-9" x 3'-9"
F2	4'-0" x 4'-0"	4'-6" x 4'-6"
F3	4'-0" x 5'-0"	4'-6" x 5'-6"
F4	4'-6" x 5'-6"	5'-0" x 6'-0"
F5	4'-6" x 6'-0"	5'-0" x 6'-6"
F6	4'-6" x 6'-0"	5'-0" x 6'-6"
SCF	3'-3" x 3'-3"	3'-9" x 3'-9"

NOTES :

1. DIMENSIONS ARE NOT TO BE SCALED.
2. ALL DIMENSIONS ARE TO BE VERIFIED PROPERLY AT SITE.
3. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.
4. ℄ DIA OF TOR STEEL
5. CLEAR COVER TO MAIN REINFORCEMENT(MILD EXPOSURE)
   a) FOR COLUMN = 40mm
   b) FOR FOOTING = 50mm
6. LAPPING:
   a) LAP LENGTH SHALL BE = 50 x DIA OF BAR.
   b) DEVELOPMENT LENGTH SHALL BE = 50 x DIA OF BAR.
7. PROVIDE CHAIR RODS WHEREVER NECESSARY
8. PROVIDE SPACER RODS OF 25mm Ø (min) AT 1000mm C/C
9. GRADE OF CONCRETE IS M25
10. GRADE OF REINFORCING STEEL IS Fe 500
10. ADOPTED SBC OF SOIL = 310 KN / Sqm, AS PER SOIL REPORT.
11. MINIMUM DEPTH OF FOUNDATION = 1.8m BELOW NGL
12. ALL THE LEVELS MENTIONED ARE FROM THE F.F.L OF GROUND + 2 FLOOR

REV.,	DESCRIPTION	REV BY.,	DATE	APP BY.,

RELEASE STATUS	DATE	SIGNATURE
PRELIMINARY/ TENDER		
FOR CONSTRUCTION		

IMPORTANT NOTES:-

- ONLY APPROVED DRAWINGS (i.e., SEALED AND DULY SIGNED AS GOOD FOR CONSTRUCTION) MUST BE USED FOR EXECUTION OF WORKS AT SITE.
- ANY DISCREPANCY IN THE DRAWING SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF STRUCTURAL ENGINEER.
- ANY MODIFICATION IN THE DESIGNER'S STRUCTURAL SYSTEM BEFORE/AFTER COMPLETION OF WORK SHALL BE IMMEDIATELY INTIMATED TO THE CONSULTANT
- CLIENT / BUILDER ENSURES THAT STRICT ADHERENCE TO THE GOOD CONSTRUCTION PRACTICE IS FOLLOWED AT SITE AS PER THE RELEVANT B.I.S. CODES.
- STRUCTURAL ENGINEER'S RESPONSIBILITY IS LIMITED TO DESIGNING & ISSUAL OF STRUCTURAL DRAWINGS ONLY.

S. MURUGESH, M.E.,FIE.,
Chartered Engineer F-1279323
Structural Engineer Grade-I
STRUCTURAL ENGINEER (Coimbatore LPA/SE/Gr-I/061/2024/01-08-2024)

* ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.

* THE COPYRIGHT OF THIS DRAWING AND OF ALL ENCLOSURES ENTRUSTED TO THE RECIPIENT PERSONALLY REMAINS THE EXCLUSIVE PROPERTY OF THE FIRM, WITH OUT OUR WRITTEN CONSENT THEY SHOULD NOT BE COPIED OR REPRODUCED OR DELIVERED OR MADE KNOWN TO THIRD PARTY.

CLIENT:- SREEVATSA - VRINDAVAN @ COIMBATORE

REFERENCE:
This Drg. is Prepared Based On The Source Drg.
1. Drg. no. Dt. OF

N
NP

BUILDING: EAST FACING VILLA-(TYPE-07)

DETAIL: FOOTING LAYOUT

SCALE:	1 : 8'-0"	JOB NO:	26-SREL-IH-01	REV	DRN BY: E.S
DATE:	13.06.26	DRG NO:	ST-FL-001		CKD BY: GOWDAMAN
		SHEET NO:	01		APD BY: S.M

sankar & associates
architecture . engineering . interior design
27, Senguptha Street, Ramnagar,
Coimbatore - 641009, India.
Phone : +91-422-2230890
Branch: 8, 34th Street, Near Pudhoor School,
Ashok Nagar, Chennai - 600 083
E-mail : admin@sankarassociates.in
Website : www.sankarassociates.in

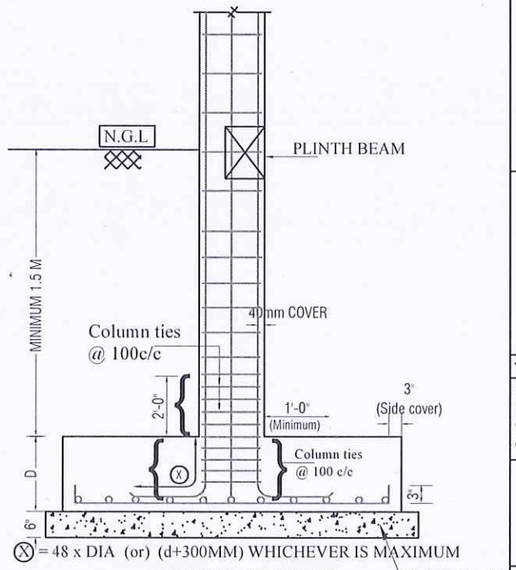
A3 - P

SCHEDULE OF COLUMNS

TYPE	COLUMN DETAILS	TIES
C1	8" × 8" — 4 # 12 ϕ	8 ϕ @ 6" c/c (1 Ties)
C2	8" × 1'-0" — 6 # 12 ϕ	8 ϕ @ 6" c/c (1 Tie)
C3	8" × 1'-4" — 4 # 16 ϕ, 2 # 12 ϕ (●)	8 ϕ @ 6" c/c (1 Tie + 1 Link)
C4	8" × 1'-4" — 6 # 16 ϕ	8 ϕ @ 6" c/c (1 Tie)
C5	1'-0" × 1'-6" — 6 # 16 ϕ, 4 # 12 ϕ (●)	8 ϕ @ 8" c/c (2 Ties)
C6	1'-0" × 1'-9" — 10 # 16 ϕ	8 ϕ @ 6" c/c (2 Ties)
SC	8" × 8" — 4 # 12 ϕ	8 ϕ @ 6" c/c (1 Ties)

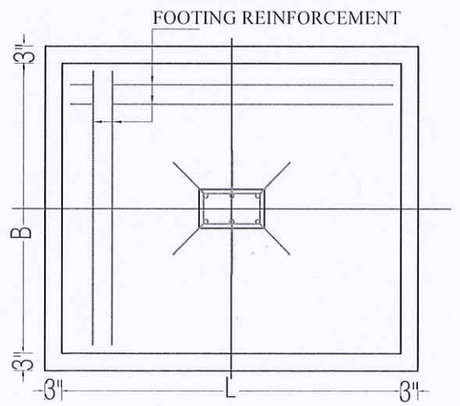
SCHEDULE OF FOOTING

TYPE	L	B	D	FOOTING REINFORCEMENT
F1	3'-3"	3'-3"	1'-0"	10 ϕ @ 7" c/c BOTHWAYS
F2	4'-0"	4'-0"	1'-0"	10 ϕ @ 6" c/c BOTHWAYS
F3	4'-0"	5'-0"	1'-4"	10 ϕ @ 6" c/c BOTHWAYS
F4	4'-6"	5'-6"	1'-4"	10 ϕ @ 6" c/c BOTHWAYS
F5	4'-6"	6'-0"	1'-6"	10 ϕ @ 5" c/c BOTHWAYS
F6	4'-6"	6'-0"	1'-6"	10 ϕ @ 5" c/c BOTHWAYS
SCF	3'-3"	3'-3"	1'-0"	10 ϕ @ 7" c/c BOTHWAYS



X = 48 x DIA (or) (d+300MM) WHICHEVER IS MAXIMUM

TYPICAL SECTION



FOOTING BASE PLAN

TYPICAL FOOTING DETAILS

NOTES :

1. DIMENSIONS ARE NOT TO BE SCALED.
2. ALL DIMENSIONS ARE TO BE VERIFIED PROPERLY AT SITE.
3. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.
4. ϕ DIA OF TOR STEEL
5. CLEAR COVER TO MAIN REINFORCEMENT(MILD EXPOSURE)
   a) FOR COLUMN = 40mm
   b) FOR FOOTING = 50mm
6. LAPPING:
   a) LAP LENGTH SHALL BE = 50 x DIA OF BAR.
   b) DEVELOPMENT LENGTH SHALL BE = 50 x DIA OF BAR.
7. PROVIDE CHAIR RODS WHEREVER NECESSARY
8. PROVIDE SPACER RODS OF 25mm Ø (min) AT 1000mm C/C
9. GRADE OF CONCRETE IS 25
10. GRADE OF REINFORCING STEEL IS Fe 500
10. ADOPTED SBC OF SOIL = 310 KN / Sqm, AS PER SOIL REPORT.
11. MINIMUM DEPTH OF FOUNDATION = 1.8m BELOW NGL
12. ALL THE LEVELS MENTIONED ARE FROM THE F.F.L. OF GROUND + 2 FLOOR

REV.	DESCRIPTION	REV BY.	DATE	APP BY.

RELEASE STATUS	DATE	SIGNATURE
PRELIMINARY/ TENDER		
FOR CONSTRUCTION		

IMPORTANT NOTES:-

- ONLY APPROVED DRAWINGS (i.e., SEALED AND DULY SIGNED AS GOOD FOR CONSTRUCTION) MUST BE USED FOR EXECUTION OF WORKS AT SITE.
- ANY DISCREPANCY IN THE DRAWING SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF STRUCTURAL ENGINEER.
- ANY MODIFICATION IN THE DESIGNER'S STRUCTURAL SYSTEM BEFORE/AFTER COMPLETION OF WORK SHALL BE IMMEDIATELY INTIMATED TO THE CONSULTANT
- CLIENT / BUILDER ENSURES THAT STRICT ADHERENCE TO THE GOOD CONSTRUCTION PRACTICE IS FOLLOWED AT SITE AS PER THE RELEVANT B.I.S. CODES.
- STRUCTURAL ENGINEER'S RESPONSIBILITY IS LIMITED TO DESIGNING & ISSUAL OF STRUCTURAL DRAWINGS ONLY.

S. MURUGESH, M.E.,FIE.,
Chartered Engineer F-1279323
Structural Engineer Grade-I
(Coimbatore LPA/SE/Gr-I/061/2024/01-08-2024)
STRUCTURAL ENGINEER

* ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.

* THE COPYRIGHT OF THIS DRAWING AND OF ALL ENCLOSURES ENTRUSTED TO THE RECIPIENT PERSONALLY REMAINS THE EXCLUSIVE PROPERTY OF THE FIRM, WITH OUT OUR WRITTEN CONSENT THEY SHOULD NOT BE COPIED OR REPRODUCED OR DELIVERED OR MADE KNOWN TO THIRD PARTY.

SREEVATSA - VRINDAVAN
@ COIMBATORE

CLIENT:-

REFERENCE:
This Drg. is Prepared Based On The Source Drg.
1. Drg. no. Dt. OF

NP

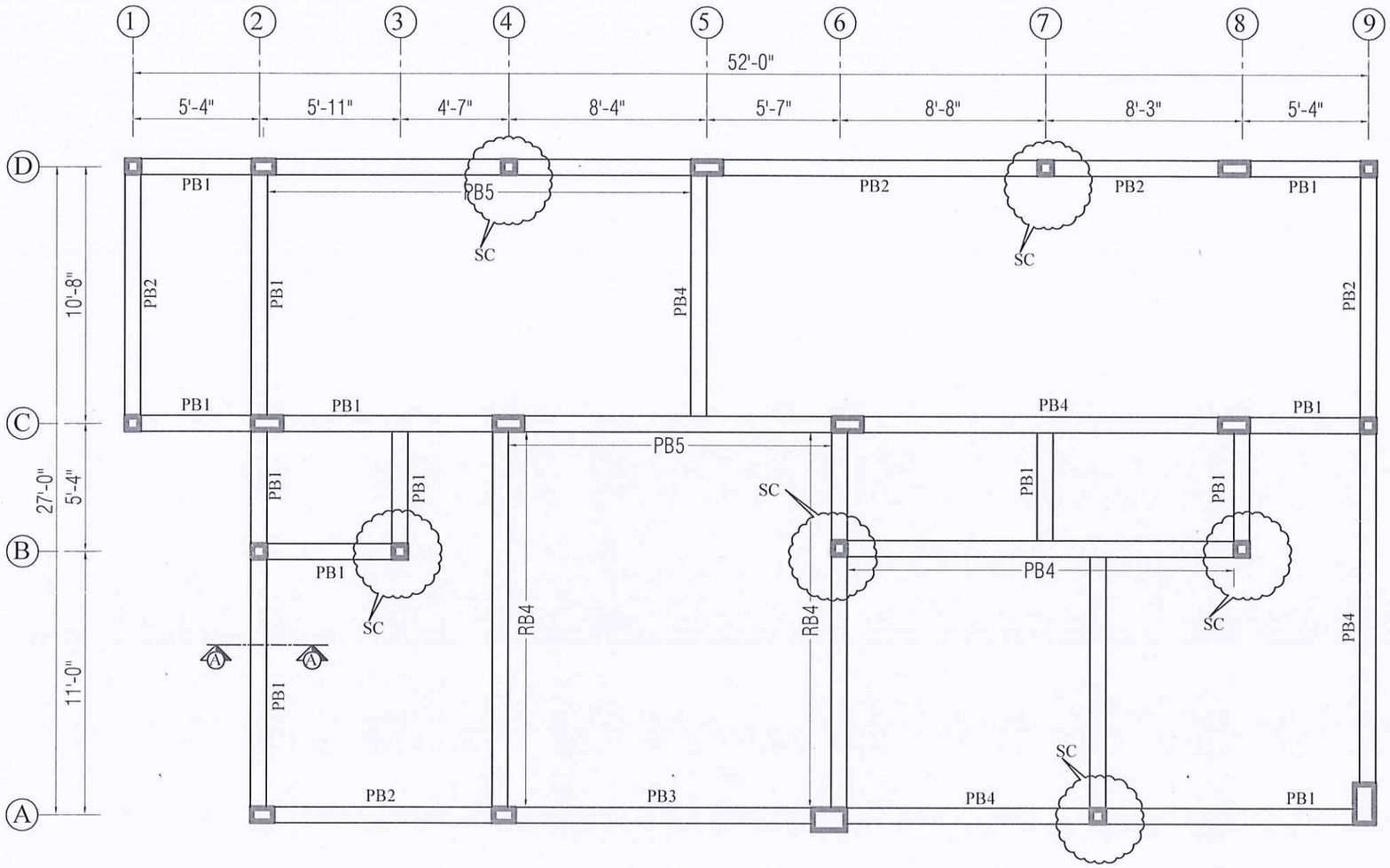
BUILDING: EAST FACING VILLA-(TYPE-07)

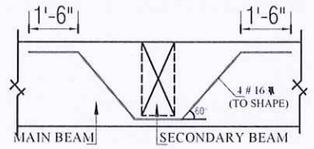
DETAIL: COLUMN & FOOTING RFT. DETAILS

SCALE:	1 : 8'-0"	JOB NO:	26-SREL-IH-01	REV	DRN BY:	E.S
DATE:	13.06.26	DRG NO:	ST-FL-001		CKD BY:	GWDAMAN
		SHEET NO:	02		APD BY:	S.M

sankar & associates
architecture . engineering . interior design
27, Senguptha Street, Ramnagar,
Coimbatore - 641009, India.
Phone : +91-422-2230890
Branch: 8, 34th Street, Near Pudhoor School,
Ashok Nagar, Chennai - 600 083
E-mail : admin@sankarassociates.in
Website : www.sankarassociates.in

A3 - P





TYPICAL BEAM TO BEAM JUNCTION DETAIL
(WHERE THE DEPTH OF SECONDARY BEAM IS LESS THAN MAIN BEAM)

NOTES :

1. DIMENSIONS ARE NOT TO BE SCALED
2. ALL DIMENSIONS ARE TO BE VERIFIED PROPERLY AT SITE
3. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS
4. ϕ DIA OF TOR STEEL
5. CLEAR COVER TO MAIN REINFORCEMENT(MILD EXPOSURE)
   a) FOR BEAMS = 25 mm
   b) DEVELOPMENT LENGTH SHALL BE = 50 x DIA OF BAR
6. LAPPING
   a) LAP LENGTH SHALL BE = 50 x DIA OF BAR
   b) FOR SLABS = 20 mm
7. PROVIDE CHAIR RODS WHEREVER NECESSARY
8. PROVIDE SPACER RODS OF 25mm Ø (min) AT 1000mm C/C
9. GRADE OF CONCRETE IS M25
10. GRADE OF REINFORCING STEEL IS Fe 500
11. ALL THE LEVELS MENTIONED ARE FROM THE F F L. OF THE RESPECTIVE FLOOR
12. FLOOR FINISH ALLOWANCE SHALL BE 50 / 75 mm FROM THE RAW SLAB AS PER SITE INSTRUCTIONS
13. REINFORCEMENT FABRICATION SHOULD BE DONE AS PER STANDARD DUCTILE DETAIL PROVIDED VIDE DRG .No
14. PROVISION OF CONDUITS / SLEEVES / CORECUTS TO BE PROVIDED AS PER SERVICE (ELECTRICAL / PLUMBING / HVAC) CONSULTANT'S DETAIL / DRAWINGS DULY APPROVED BY THE ARCHITECT / STRUCTURAL ENGINEER

REV.	DESCRIPTION	REV BY.,	DATE	APD BY.,

RELEASE STATUS	DATE	SIGNATURE
PRELIMINARY/ TENDER		
FOR CONSTRUCTION		

IMPORTANT NOTES :-

- ONLY APPROVED DRAWINGS (i.e., SEALED AND DULY SIGNED AS GOOD FOR CONSTRUCTION) MUST BE USED FOR EXECUTION OF WORKS AT SITE.
- ANY DISCREPANCY IN THE DRAWING SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF STRUCTURAL ENGINEER.
- ANY MODIFICATION IN THE DESIGNER'S STRUCTURAL SYSTEM BEFORE/AFTER COMPLETION OF WORK SHALL BE IMMEDIATELY INTIMATED TO THE CONSULTANT
- CLIENT / BUILDER ENSURES THAT STRICT ADHERENCE TO THE GOOD CONSTRUCTION PRACTICE IS FOLLOWED AT SITE AS PER THE RELEVANT B.I.S. CODES
- STRUCTURAL ENGINEER'S RESPONSIBILITY IS LIMITED TO DESIGNING & ISSUAL OF STRUCTURAL DRAWINGS ONLY.

S. MURUGESH, M.E.,F.I.E.,
Chartered Engineer F-1279323
Structural Engineer Grade-I
(Coimbatore LPA/SE/Gr-I/061/2024/01-08-2024)

STRUCTURAL ENGINEER

* ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.

* THE COPYRIGHT OF THIS DRAWING AND OF ALL ENCLOSURES ENTRUSTED TO THE RECIPIENT PERSONALLY REMAINS THE EXCLUSIVE PROPERTY OF THE FIRM, WITH OUT OUR WRITTEN CONSENT THEY SHOULD NOT BE COPIED OR REPRODUCED OR DELIVERED OR MADE KNOWN TO THIRD PARTY.

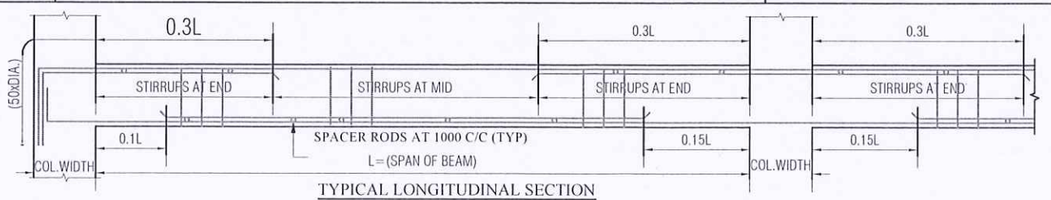
SCHEDULE OF PLINTH BEAM

BEAM NO						
PB1	-150 Lvl From NGL, 1'-4"	2 # 12 ϕ ST 8 ϕ @ 8" c/c 2 # 12 ϕ ST				
PB2	-150 Lvl From NGL, 1'-4"	2 # 12 ϕ ST 8 ϕ @ 7" c/c 2 # 12 ϕ Ctld (●) 2 # 12 ϕ ST	MID		2 # 12 ϕ ST 2 # 12 ϕ Ctld (●) 8 ϕ @ 6" c/c 2 # 12 ϕ ST	END
PB3	-150 Lvl From NGL, 1'-4"	2 # 12 ϕ ST 8 ϕ @ 7" c/c 2 # 12 ϕ Ctld (●) 2 # 12 ϕ ST	MID		2 # 12 ϕ ST 2 # 12 ϕ Ctld (●) 8 ϕ @ 6" c/c 2 # 12 ϕ ST	END

SCHEDULE OF PLINTH BEAM

BEAM NO						
PB4	-150 Lvl From NGL, 1'-8"	2 # 12 ϕ ST 8 ϕ @ 5" c/c 2 # 12 ϕ Ctld (●) 2 # 12 ϕ ST	MID		2 # 12 ϕ ST 2 # 12 ϕ Ctld (●) 8 ϕ @ 6" c/c 2 # 12 ϕ ST	END
PB5	-150 Lvl From NGL, 1'-8"	2 # 12 ϕ ST 8 ϕ @ 5" c/c 2 # 12 ϕ Ctld (●) 2 # 12 ϕ ST	MID		2 # 12 ϕ ST 2 # 12 ϕ Ctld (●) 8 ϕ @ 6" c/c 2 # 12 ϕ ST	END

NOTE:
SC - STUB COLUMN TO BE TERMINATED AT PLINTH BEAM TOP LVL



TYPICAL LONGITUDINAL SECTION

SREEVATSA - VRINDAVAN
@ COIMBATORE

CLIENT:-

REFERENCE:

N

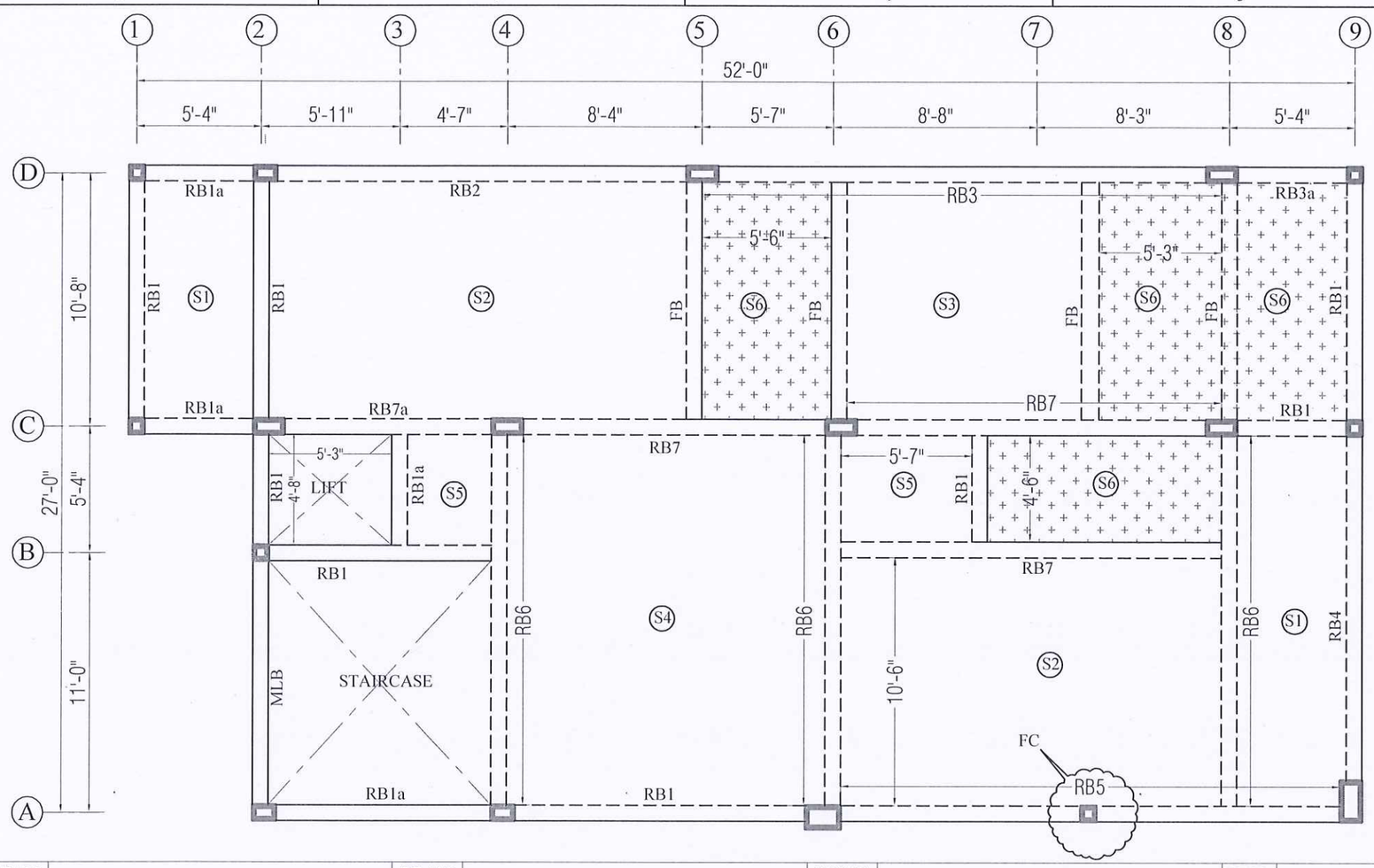
BUILDING: EAST FACING VILLA-(TYPE-07)

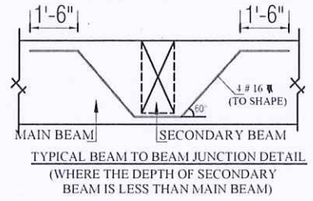
DETAIL: PLINTH BEAM LAYOUT & DETAILS

SCALE: 1: 8'-0"	JOB NO: 26-SREL-IH-01	REV:	DRN BY: E.S
DATE: 13.06.26	DRG NO: ST-PL-001		CKD BY: GOWDAMAN
	SHEET NO.		APD BY: S.M

sankar & associates
architecture, engineering, interior design
27, Sengupthe Street, Ramnagar,
Coimbatore - 641009, India.
Phone : +91-422-2230890
Branch: 8, 34th Street, Near Pudhoor School,
Ashok Nagar, Chennai - 600 083
E-mail : admin@sankarassociates.in
Website : www.sankarassociates.in

A3 - P





TYPICAL BEAM TO BEAM JUNCTION DETAIL
(WHERE THE DEPTH OF SECONDARY BEAM IS LESS THAN MAIN BEAM)

NOTES :

1. DIMENSIONS ARE NOT TO BE SCALED
2. ALL DIMENSIONS ARE TO BE VERIFIED PROPERLY AT SITE
3. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS
4. ϕ DIA OF TOR STEEL
5. CLEAR COVER TO MAIN REINFORCEMENT(MILD EXPOSURE)
   a) FOR BEAMS = 25 mm
   b) DEVELOPMENT LENGTH SHALL BE = 50 x DIA OF BAR
6. LAPPING
   a) LAP LENGTH SHALL BE = 50 x DIA OF BAR
   b) FOR SLABS = 20 mm
7. PROVIDE CHAIR RODS WHEREVER NECESSARY
8. PROVIDE SPACER RODS OF 25mm Ø (min) AT 1000mm C/C
9. GRADE OF CONCRETE IS M25
10. GRADE OF REINFORCING STEEL IS Fe 500
11. ALL THE LEVELS MENTIONED ARE FROM THE F F L OF THE RESPECTIVE FLOOR
12. FLOOR FINISH ALLOWANCE SHALL BE 50 / 75 mm FROM THE RAW SLAB AS PER SITE INSTRUCTIONS
13. REINFORCEMENT FABRICATION SHOULD BE DONE AS PER STANDARD DUCTILE DETAIL PROVIDED VIDE DRG. No.
14. PROVISION OF CONDUITS / SLEEVES / CORECUTS TO BE PROVIDED AS PER SERVICE (ELECTRICAL / PLUMBING / HVAC) CONSULTANTS DETAIL / DRAWINGS DULY APPROVED BY THE ARCHITECT / STRUCTURAL ENGINEER

REV.	DESCRIPTION	REV BY..	DATE	APD BY..

RELEASE STATUS	DATE	SIGNATURE
PRELIMINARY/ TENDER		
FOR CONSTRUCTION		

IMPORTANT NOTES:-

- ONLY APPROVED DRAWINGS (i.e., SEALED AND DULY SIGNED AS GOOD FOR CONSTRUCTION) MUST BE USED FOR EXECUTION OF WORKS AT SITE.
- ANY DISCREPANCY IN THE DRAWING SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF STRUCTURAL ENGINEER.
- ANY MODIFICATION IN THE DESIGNER'S STRUCTURAL SYSTEM BEFORE/AFTER COMPLETION OF WORK SHALL BE IMMEDIATELY INTIMATED TO THE CONSULTANT
- CLIENT / BUILDER ENSURES THAT STRICT ADHERENCE TO THE GOOD CONSTRUCTION PRACTICE IS FOLLOWED AT SITE AS PER THE RELEVANT B.I.S. CODES
- STRUCTURAL ENGINEER'S RESPONSIBILITY IS LIMITED TO DESIGNING & ISSUAL OF STRUCTURAL DRAWINGS ONLY.

S. MURUGESH, M.E.,FIE.,
Chartered Engineer F-1279323
Structural Engineer Grade-I
(Coimbatore LPA/SE/Gr-I/061/2024/01-08-2024)

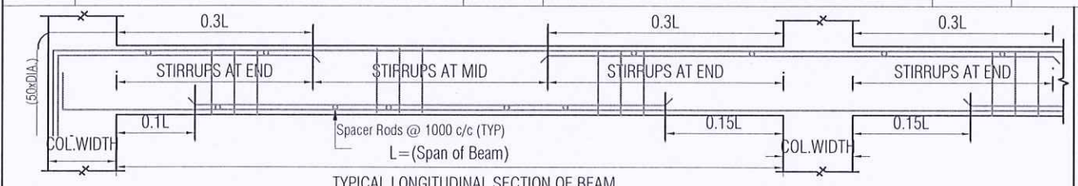
STRUCTURAL ENGINEER

* ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.

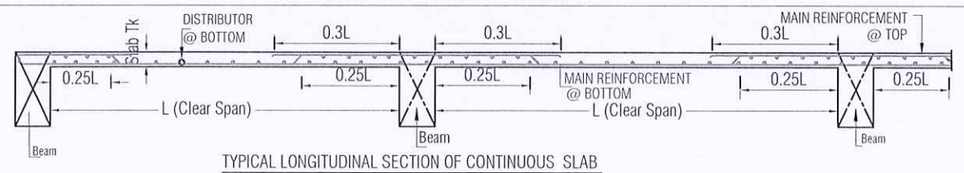
* THE COPYRIGHT OF THIS DRAWING AND OF ALL ENCLOSURES ENTRUSTED TO THE RECIPIENT PERSONALLY REMAINS THE EXCLUSIVE PROPERTY OF THE FIRM, WITH OUT OUR WRITTEN CONSENT THEY SHOULD NOT BE COPIED OR REPRODUCED OR DELIVERED OR MADE KNOWN TO THIRD PARTY.

SCHEDULE OF ROOF BEAM

BEAM TYPE		BEAM TYPE		BEAM TYPE		BEAM TYPE	
RB1	2 # 12 ϕ ST, 8 ϕ @ 8" c/c, 2 # 12 ϕ ctld (•), 2 # 12 ϕ ST (MID); 2 # 12 ϕ ST, 2 # 12 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 12 ϕ ST (END)	RB3	2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ctld (•), 2 # 16 ϕ ST (MID); 2 # 16 ϕ ST, 2 # 16 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 16 ϕ ST (END)	RB5	2 # 25 ϕ ST, 8 ϕ @ 6" c/c, 2 # 16 ϕ ctld (•), 4 # 25 ϕ ST (MID); 2 # 25 ϕ ST, 2 # 25 ϕ ctld (•), 8 ϕ @ 6" c/c, 4 # 25 ϕ ST (END)	RB7	2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ctld (•), 2 # 16 ϕ ST (MID); 2 # 16 ϕ ST, 2 # 16 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 16 ϕ ST (END); 2 # 16 ϕ ST, 8 ϕ @ 6" c/c (FB)
RB2	2 # 12 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ctld (•), 2 # 12 ϕ ST (MID); 2 # 12 ϕ ST, 2 # 16 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 12 ϕ ST (END)	RB4	2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 12 ϕ ctld (•), 2 # 16 ϕ ST (MID); 2 # 16 ϕ ST, 2 # 12 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 16 ϕ ST (END)	RB6	2 # 16 ϕ ST, 8 ϕ @ 6" c/c, 2 # 16 ϕ ctld (•), 4 # 16 ϕ ST (MID); 2 # 16 ϕ ST, 2 # 16 ϕ ctld (•), 8 ϕ @ 150 c/c, 4 # 16 ϕ ST (END)	RB7a	2 # 12 ϕ ST, 8 ϕ @ 8" c/c, 2 # 12 ϕ ST
						RB3a	2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ST



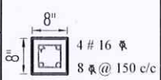
TYPICAL LONGITUDINAL SECTION OF BEAM



TYPICAL LONGITUDINAL SECTION OF CONTINUOUS SLAB

SCHEDULE OF SLABS

SLAB NO.	SLAB THICKNESS	REINFORCEMENT IN SHORTER DIRECTION	REINFORCEMENT IN LONGER DIRECTION
S1	0'-5"	8 ϕ @ 6"c/c (Ctld)	8 ϕ @ 7"c/c (Ctld)
S2	0'-5"	10 ϕ @ 6"c/c (Ctld)	8 ϕ @ 7"c/c (Straight)
S3	0'-5	10 ϕ @ 6"c/c (Ctld)	8 ϕ@ 6"c/c (Ctld)
S4	0'-6"	10 ϕ @ 6"c/c (Ctld)	10 ϕ @ 6"c/c (Ctld)
S5	0'-5"	8 ϕ @ 6"c/c (Top & Bottom)	8 ϕ @ 6"c/c (Top & Bottom)
S6	0'-5"	8 ϕ @ 6"c/c (Top & Bottom)	8 ϕ @ 6"c/c (Top & Bottom)



FLOATING COLUMN-FC

SREEVATSA - VRINDAVAN
@ COIMBATORE

CLIENT:-

REFERENCE:

This Drawing is Prepared Based On The Source Drg.
1:Dwg No : A-100 Ground Floor Plan
2 :Date : 26.07.24

N

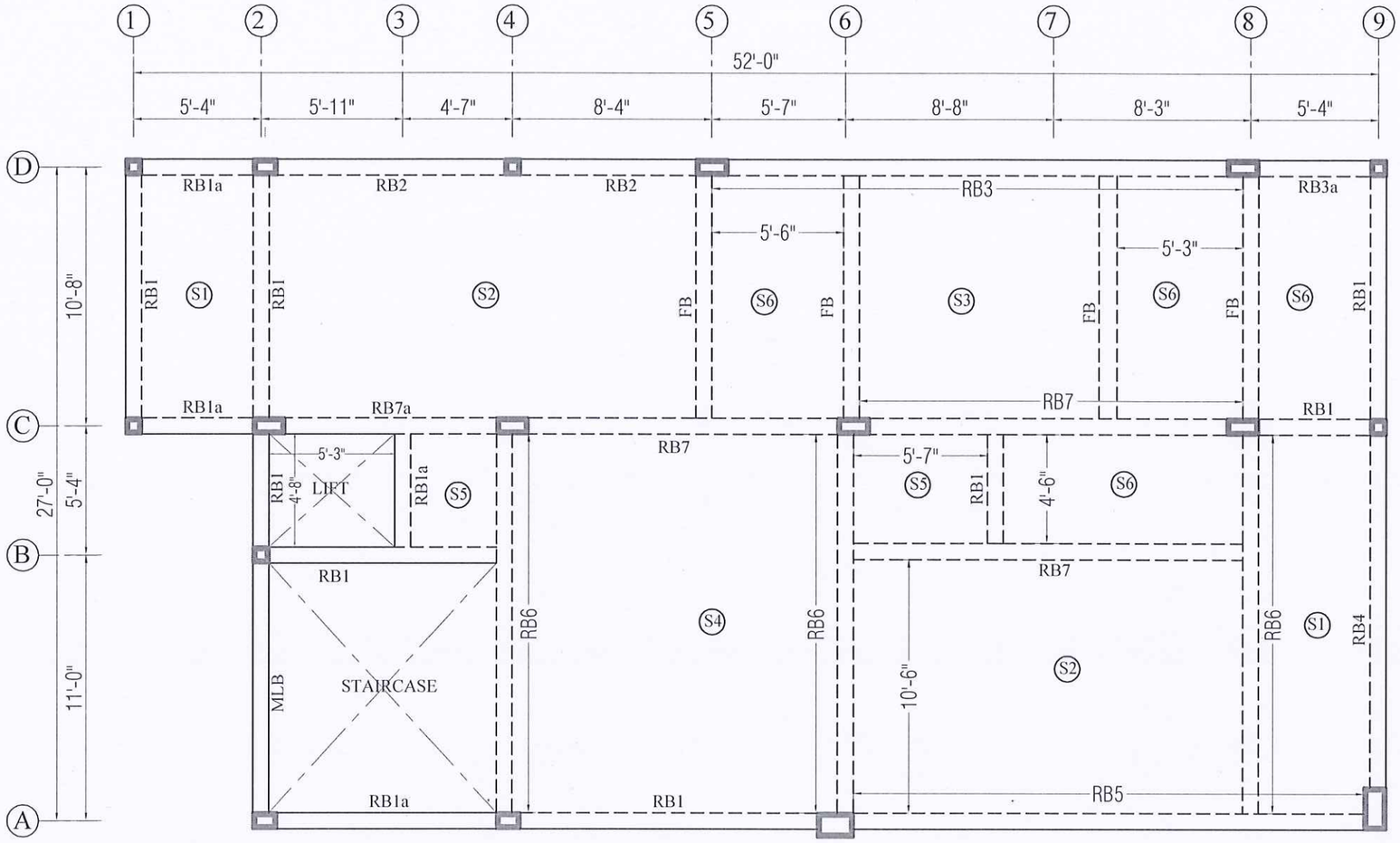
BUILDING: EAST FACING VILLA-(TYPE-07)

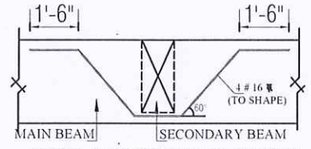
DETAIL: GROUND FLOOR ROOF BEAM LAYOUT & SECTIONS

SCALE: 1: 8'-0"	JOB NO: 26-SREL-IH-01	REV	DRN BY: E.S
DATE: 13.06.26	DRG NO: ST-RF-001		CKD BY: GOWDAMAN
	SHEET NO.		APD BY: S.M

sankar & associates
architecture . engineering . interior design
27, Senguptha Street, Ramnagar,
Coimbatore - 641009, India.
Phone : +91-422-2230890
Branch: 8, 34th Street, Near Pudhoor School,
Ashok Nagar, Chennai - 600 083
E-mail : admin@sankarassociates.in
Website : www.sankarassociates.in

A3 - P





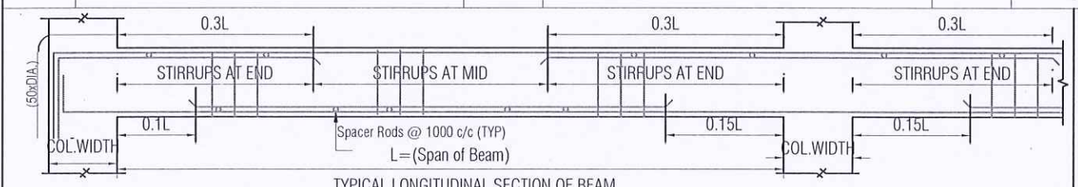
TYPICAL BEAM TO BEAM JUNCTION DETAIL
(WHERE THE DEPTH OF SECONDARY BEAM IS LESS THAN MAIN BEAM)

SCHEDULE OF ROOF BEAM

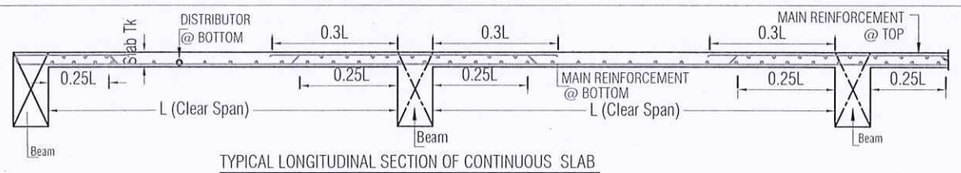
BEAM TYPE		BEAM TYPE		BEAM TYPE		BEAM TYPE	
RB1	8" × 1'-3"; MID: 2 # 12 ϕ ST, 8 ϕ @ 8" c/c, 2 # 12 ϕ ctld (•), 2 # 12 ϕ ST; END: 2 # 12 ϕ ST, 2 # 12 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 12 ϕ ST	RB3	8" × 1'-6"; MID: 2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ctld (•), 2 # 16 ϕ ST; END: 2 # 16 ϕ ST, 2 # 16 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 16 ϕ ST	RB5	8" × 2'-0"; MID: 2 # 25 ϕ ST, 8 ϕ @ 6" c/c, 2 # 16 ϕ ctld (•), 4 # 25 ϕ ST; END: 2 # 25 ϕ ST, 2 # 25 ϕ ctld (•), 8 ϕ @ 6" c/c, 4 # 25 ϕ ST	RB7	8" × 1'-6"; MID: 2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ctld (•), 2 # 16 ϕ ST; END: 2 # 16 ϕ ST, 2 # 16 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 16 ϕ ST; FB: 2 # 16 ϕ ST, 8 ϕ @ 6" c/c
RB2	8" × 1'-3"; MID: 2 # 12 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ctld (•), 2 # 12 ϕ ST; END: 2 # 12 ϕ ST, 2 # 16 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 12 ϕ ST	RB4	8" × 1'-6"; MID: 2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 12 ϕ ctld (•), 2 # 16 ϕ ST; END: 2 # 16 ϕ ST, 2 # 12 ϕ ctld (•), 8 ϕ @ 6" c/c, 2 # 16 ϕ ST	RB6	8" × 1'-6"; MID: 2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ctld (•), 4 # 16 ϕ ST; END: 2 # 16 ϕ ST, 2 # 16 ϕ ctld (•), 8 ϕ @ 150 c/c, 4 # 16 ϕ ST	RB7a	8" × 1'-3"; 2 # 12 ϕ ST, 8 ϕ @ 8" c/c, 2 # 12 ϕ ST

RB3a: 8" × 1'-6"; 2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ST

RB7a: 8" × 1'-6"; 2 # 16 ϕ ST, 8 ϕ @ 8" c/c, 2 # 16 ϕ ST



TYPICAL LONGITUDINAL SECTION OF BEAM



TYPICAL LONGITUDINAL SECTION OF CONTINUOUS SLAB

SCHEDULE OF SLABS

SLAB NO.	SLAB THICKNESS	REINFORCEMENT IN SHORTER DIRECTION	REINFORCEMENT IN LONGER DIRECTION
S1	0'-5"	8 ϕ @ 6"c/c (Ctld)	8 ϕ @ 7"c/c (Ctld)
S2	0'-5"	10 ϕ @ 6"c/c (Ctld)	8 ϕ @ 7"c/c (Straight)
S3	0'-5	10 ϕ @ 6"c/c (Ctld)	8 ϕ@ 6"c/c (Ctld)
S4	0'-6"	10 ϕ @ 6"c/c (Ctld)	10 ϕ @ 6"c/c (Ctld)
S5	0'-5"	8 ϕ @ 6"c/c (Top & Bottom)	8 ϕ @ 6"c/c (Top & Bottom)
S6	0'-5"	8 ϕ @ 6"c/c (Top & Bottom)	8 ϕ @ 6"c/c (Top & Bottom)

NOTES :

1. DIMENSIONS ARE NOT TO BE SCALED
2. ALL DIMENSIONS ARE TO BE VERIFIED PROPERLY AT SITE
3. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS
4. ϕ DIA OF TOR STEEL
5. CLEAR COVER TO MAIN REINFORCEMENT(MILD EXPOSURE)
   a) FOR BEAMS = 25 mm
   b) DEVELOPMENT LENGTH SHALL BE = 50 x DIA OF BAR
6. LAPPING
   a) LAP LENGTH SHALL BE = 50 x DIA OF BAR
   b) FOR SLABS = 20 mm
7. PROVIDE CHAIR RODS WHEREVER NECESSARY
8. PROVIDE SPACER RODS OF 25mm Ø (min) AT 1000mm C/C
9. GRADE OF CONCRETE IS M25
10. GRADE OF REINFORCING STEEL IS Fe 500
11. ALL THE LEVELS MENTIONED ARE FROM THE F F L OF THE RESPECTIVE FLOOR
12. FLOOR FINISH ALLOWANCE SHALL BE 50 / 75 mm FROM THE RAW SLAB AS PER SITE INSTRUCTIONS
13. REINFORCEMENT FABRICATION SHOULD BE DONE AS PER STANDARD DUCTILE DETAIL PROVIDED VIDE DRG. No.
14. PROVISION OF CONDUITS / SLEEVES / CORECUTS TO BE PROVIDED AS PER SERVICE (ELECTRICAL / PLUMBING / HVAC) CONSULTANTS DETAIL / DRAWINGS DULY APPROVED BY THE ARCHITECT / STRUCTURAL ENGINEER

REV.	DESCRIPTION	REV BY..	DATE	APD BY.

RELEASE STATUS	DATE	SIGNATURE
PRELIMINARY/ TENDER		
FOR CONSTRUCTION		

IMPORTANT NOTES :-

- ONLY APPROVED DRAWINGS (i.e., SEALED AND DULY SIGNED AS GOOD FOR CONSTRUCTION) MUST BE USED FOR EXECUTION OF WORKS AT SITE.
- ANY DISCREPANCY IN THE DRAWING SHALL BE IMMEDIATELY BROUGHT TO THE NOTICE OF STRUCTURAL ENGINEER.
- ANY MODIFICATION IN THE DESIGNER'S STRUCTURAL SYSTEM BEFORE/AFTER COMPLETION OF WORK SHALL BE IMMEDIATELY INTIMATED TO THE CONSULTANT
- CLIENT / BUILDER ENSURES THAT STRICT ADHERENCE TO THE GOOD CONSTRUCTION PRACTICE IS FOLLOWED AT SITE AS PER THE RELEVANT B.I.S. CODES.
- STRUCTURAL ENGINEER'S RESPONSIBILITY IS LIMITED TO DESIGNING & ISSUAL OF STRUCTURAL DRAWINGS ONLY

S. MURUGESH, M.E.,FIE.,
Chartered Engineer F-1279323
Structural Engineer Grade-I
(Coimbatore LPA/SE/Gr-I/061/2024/01-08-2024)

STRUCTURAL ENGINEER

* ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.

* THE COPYRIGHT OF THIS DRAWING AND OF ALL ENCLOSURES ENTRUSTED TO THE RECIPIENT PERSONALLY REMAINS THE EXCLUSIVE PROPERTY OF THE FIRM, WITH OUT OUR WRITTEN CONSENT THEY SHOULD NOT BE COPIED OR REPRODUCED OR DELIVERED OR MADE KNOWN TO THIRD PARTY.

SREEVATSA - VRINDAVAN @ COIMBATORE

CLIENT:-

REFERENCE:

This Drawing is Prepared Based On The Source Drg.
1:Dwg No : A-100 Ground Floor Plan
2 :Date : 26.07.24

N

BUILDING: EAST FACING VILLA-(TYPE-07)

DETAIL: FIRST FLOOR ROOF BEAM LAYOUT & SECTIONS

SCALE:	1: 8'-0"	JOB NO:	26-SREL-IH-01	REV	DRN BY:	E.S
DATE:	13.06.26	DRG NO:	ST-RF-002		CKD BY:	GOWDAMAN
		SHEET NO.			APD BY:	S.M

sankar & associates
architecture . engineering . interior design
27, Senguptha Street, Ramnagar,
Coimbatore - 641009, India.
Phone : +91-422-2230890
Branch: 8, 34th Street, Near Pudhoor School,
Ashok Nagar, Chennai - 600 083
E-mail : admin@sankarassociates.in
Website : www.sankarassociates.in

A3 - P

THE LANDLENS SUITE

Eight ways to know a piece of land before you pay for it.

This report covers one part of the picture. These cover the rest, drawn from the same government records, for any property in Tamil Nadu.

LandLens One
Ask anything about a property and get an answer grounded in live government records, with the sources shown.
/landlens/one

Verify My Land
Every record check run on one property and returned as a single report.
/landlens/verify-my-land

Legal Opinion
An advocate's written opinion on the title, built on the records we pull for it.
/landlens

One Map
Every layer on one map: the parcel, its boundary, zoning, water bodies and what sits around it.
/landlens/one/map

PriceMap
What land actually changed hands for around this plot, taken from the registered deeds.
/landlens/pricemap

Build Scope
What you are allowed to build here: floor space, height, coverage and setbacks.
/landlens/build-scope

Property Tracker
Watch a property and hear about it when something new is registered against it.
/landlens/property-tracker

Deal Room
Run the transaction in one place: documents, stamping, signatures and the parties.
/landlens/deal-room

FREE TOOLS · NO ACCOUNT NEEDED

Twenty-four checks you can run yourself, at no cost.

Records and verification

The registers themselves, read for you.

- Encumbrance Certificate
- Patta and Chitta
- Field Measurement Sketch
- EC Analyzer
- Bank charge check
- Court case search
- Seller background check
- Approval check by survey

Value and duty

What it is worth and what it costs to register.

- Guideline value by street
- Guideline value by survey
- Stamp duty and registration fees
- Capital gains
- Floor space index
- Area unit converter

Zoning and land use

What the plan says can happen on this land.

- Land use zone finder
- CMDA land use check
- Coastal regulation zone
- Master plan check
- Water bodies finder
- Airport height clearance

Registers and directories

Who holds it, and which office keeps the record.

- Find your registering office
- Temple property check
- Waqf property check
- RERA register

Every free tool
/tools

Services we run for you
/services

The LandLens suite
/landlens/one

Verified RealEstate™

Every claim in this document traces back to a government record.

- Legal opinions, due diligence and title verification
- Building plan, layout and sub-division approvals
- Completion and occupancy certificates, regularisation
- Escrow, negotiation and NRI property management
- Land survey, soil testing, architecture and construction

Verified RealEstate
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India
hello@verified.realestate
+91 9996 12 9996

Prepared from the registers named on the page each finding sits on. Where a register could not be read, this document says so in its place rather than leaving the gap to be read as a clean result.