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DIGITALLY VERIFIED RECORD

M Audiseshaiah
& Sons

Architects, Engineers & Project Management Consultants

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 + 4 floors Residential cum Commercial (Office at First floor only) building with 35 dwelling units (Height 15.25m) at Thiruneermalai Main Road, Chrompet, Chennai – 600044 bearing S.no. 306 of Thiruneermalai Village within the limits of Tambaram Corporation has been done by me based on the report of geotechnical investigation (soil test) done by Nagadi Consultants vide Report No. G (C) 8529 Dated 20-06-2017 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 M30

(ii) The design and analysis has been done using the code of practice for plain and reinforced concrete as per IS 456, design loads as per IS Codes No.875-1987 and design of earthquake resistant structure as per IS Code No.1893

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

Stamp and Signature

M. VENKATASUBBA RAO,
B.E., M.S. (Structural)
Registered Engineer Grade I (RE),
CMDA No. RE/GR-I/19/03/070
Licensed Surveyor, Class I
L.S. No. RSE100862019
Greater Chennai Corporation
38/74, Bazullah Road, T. Nagar, Ch-17.
Ph:28344962/28344857,
Email:vmadala@yahoo.com

GSTIN:33AAWFA2842G1ZF

Panel Size for Critical Column 2.59m x 3.22m

Load For Ground Floor

Dead Load of Roof Slab incl. Floor finish = 2.59 x 3.22 x [(0.125 x 25)+1] = 34.402 KN
Live Load of Roof slab = 2.59 x 3.22 x 2 = 16.68 KN
Self Weight of Roof Beam = (2.59 + 3.22) x 0.23 x 0.46 x 25 = 15.37 KN
9" Brick Work = (2.59 + 3.22) x 0.115 x 2.44 x 19 = 30.98 KN
Sub Total = 97.432 KN

Load For Typical Floor STILTS,FIRST,SECOND ,THIRD,FOURTH

Dead Load of Roof Slab incl. Floor finish = 2.59 x 3.22 x [(0.125 x 25)+1] x 4] = 137.61 KN
Live Load of Roof slab = 2.59 x 3.22 x 2 x 4 = 66.72 KN
Self Weight of Roof Beam = (2.59 + 3.22) x 0.23 x 0.46 x 25 x 4 = 61.47 KN
9" Brick Work = (2.59 + 3.22) x 0.115 x 2.44 x 19 x 4 = 123.91 KN
Sub Total = 389.71 KN

TOTAL LOAD = 487.142 KN

10% of Self Weight OF Footing = 73.08 KN

TOTAL LOAD = 560.23 KN

Assuming S.B.C 100KN/m²

Footing Area Required = 60.29Sq.ft
Footing Area Provided (10' x 10') = 110.25 Sq.ft **Hence it is Safe**

Provide 10' x 10 x 2' Raft footing at a depth of 1'-6"Concretedepth

Net earth pressure = 560.23 / (3.05 x 3.05) = 60.23 KN/m²

60.23KN/M2 < 100KN/M2 HENCE IT IS SAFE

Factorised Net Earth Pressure= 560.23x1.5 / (3.05 x 3.05) = 91 KN/m²
Maximum bending moment :
short Direction = 91 x 3.05 x [(3.05-0.3)/ 2] x [(3.05-0.3)/2] x ½ = 262.38 KN.M
MuBD2 = 262380000 / (3050 x 610 x 610) = 0.24 **Pt VALUE = 0.084**
(0.084 x 3050 x 610) / 100 = (1563 / 3.05) = 512.46 mm²

Area of Steel Required = 12 # @ 8.68"c/c
Area of Steel Provided16# @ 4"C/C
HENCE IT IS SAFE

The load coming over The individual column is distributed through ISOLATED for size of (3.05m x 3.05m) and also,Plinth Beam is tied with individual Column at 6" Below N.G.l.itself, which is more stable for the structure.

CHECK FOR DIRECT STRESS (SHEAR):

Critical section for Shear is at a distange d = 610 mm from the face ot the Column.
Max. Shear force at Critical section = 91 x 3.05 x [({3.05 - 0.3} / 2) - 0.61] = 212.4 KN
Nominal Shear Stress = 212.4 x 1000 / 3050 x 610 = 0.115N/mm²
Area Of Steel Required = 512.46 mm²

Percentage Of Steel = 512.46 x 100 / 3050 x 610 = 0.028%

Shear Strength Of M25 Concrete With 0.028% = 0.36 N/mm² > 0.115 N/mm²

HENCE IT IS SAFE

CHECK FOR PUNCHING SHEAR:

Punching Load = p - (Column area x S.B.C)
Punching Load = 560.23 - (0.3 x 0.46 x 100) =546.43 KN
Punching Load = (546.43) / [2 x (0.3 + 0.46) x 610] =0.59 N/mm²

Allowable Shear Strength Of M25 Concrete = 0.25 25 =1.25N/mm² >0.59N/mm²

HENCE IT IS SAFE

CALCULATION OF BASE SHEAR / SEISMIC FORCES

Height of the Building =	**12.15**	m			
Base dimension =	**45.53**	m			
Seismic Zone =	**3**				
Zone Factor, Z =	**0.16**				
Importance Factor, *I* =	**1.2**				
Type of Soil =	**3**	1-Rock, 2-Medium Soil, 3-Soft Soil			
		T1	*T2*	*T3*	
Time period of Structure, *T* =	0.162	0.488	0.162	0.59	
Acceleration Coefficient (Sa/g) =	**2.5**				
Response Reduction Factor,R =	**3**				
Seismic Coefficient, A_{h} =	**0.080**	(Z * I * Sa)/(2*R*g)			
Total Base Shear, V = Ah *W =	323.08	**KN**			
Base Shear Per Column = (323.08 / 80) =		4.04	**KN**		
Seismic Moment per Column =(4.04 x 3.05) / 2 =		6.17	**KN**		

HENCE IT IS SAFE

CHECK FOR FOOTING

(P/A)+(MY/I)
= (560.23/9.31) + [(6.17x3.05)/(3.05x3.05x3.05x3.05)/12] < 323.08 x 1.5
= 62.79 < 484.62

HENCE IT IS SAFE

DESIGN OF COLUMN

AXIAL LOAD OF COLUMN (Pu) = 560.23KN
Pu = (0.4 Fck x Ac) + 0.67 Fy x Asc
(560.23 x 1.5 x 1000) = (0.4 x 25 x 0.3 x 0.46) + (0.67 x 415 x Asc)
840345 = 1380000 + 278.05Asc
Ast = -1941
Ascmin = 0.008 x300x460 = 1104

AREA OF STEEL REQUIRED = 1104mm²
AREA OF STEEL PROVIDED = (8)-25Ø = 3900mm²
HENCE IT IS SAFE

DESIGN OF BEAM

Self weight of beam = 0.23 x 0.46 x 25 = 2.65 KN/m
Load from the Slab = 1 x 0.5 x 0.5 x 4.55 x 8.75 = 9.96 KN/m

Load from the Slab = 1 x 0.5 x 0.5 x 1.2 x 8.75 = 2.63 KN/m
4½ inches Wall = 0.115 x 19 x 2.44 = 5.34 KN/m

TOTAL LOAD = 20.58KN/m

Max.B. M = WL2/8 = 20.58 x 5.18 x 5.18 / 8 = 69.03
Mu/Bd2 = 69.03 x 1000 x 1000 / 230 x 460 x 460 = 1.42

From the table 1 for Mu/BD2 = 0.81 Pt = 0.7

0.7 x 230 x 460 = 74060 / 100 = 741 mm2

AREA OF STEEL REQUIRED = 741mm²
AREA OF STEEL PROVIDED = (4) - 16Ø = 805mm²
Hence it is safe

DESIGN OF SLAB

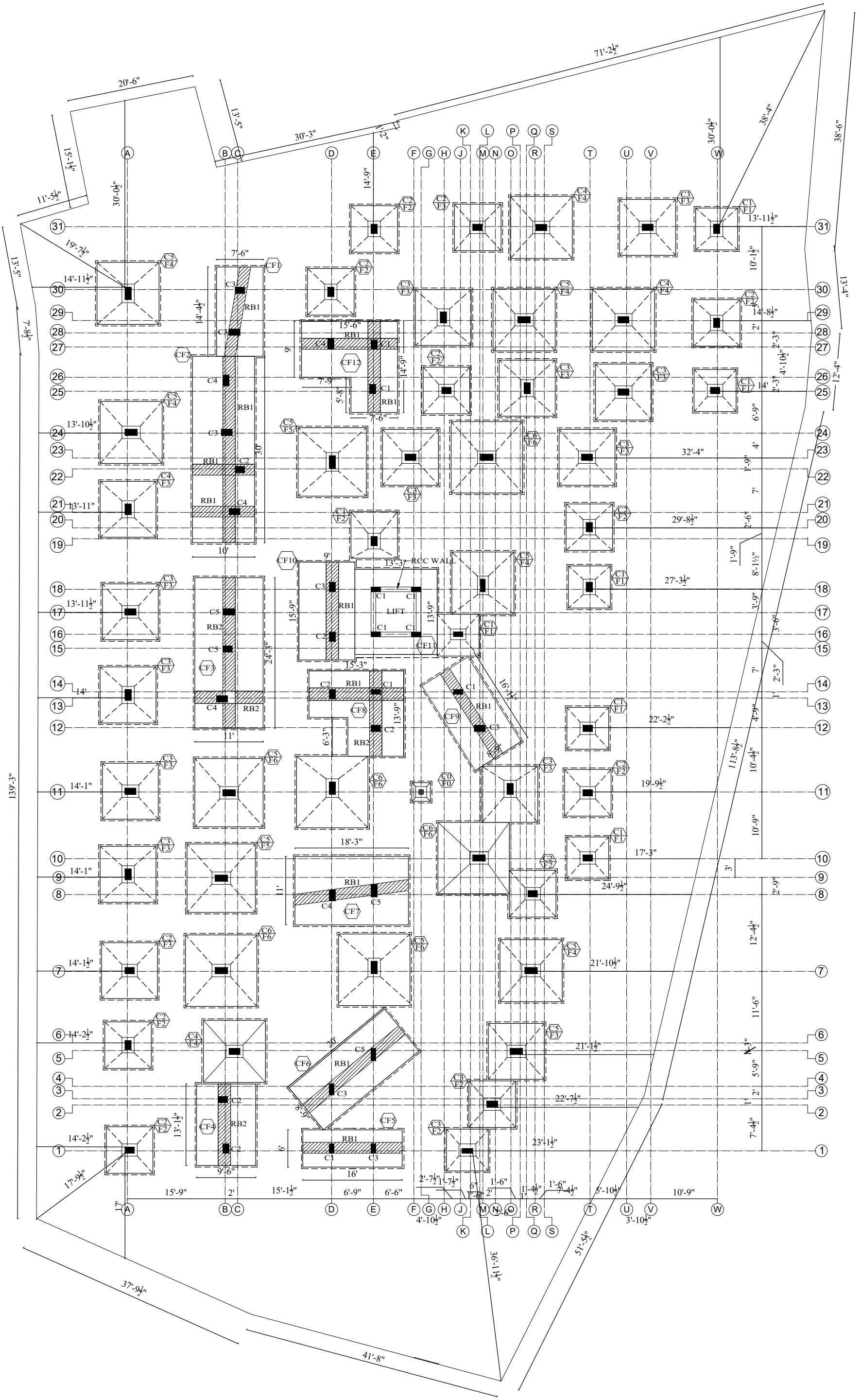
Panel Size =5.18 m x 4.55 m

Ly/Lx = 3.425 / 3.175 = 1.08 Hence design two way slab
Type Of Panel = Interior panels
Negative Moment of Continuous Edges = 0.04 x 8.75 x 1.5 x 3.175 x 3.175 = 5.3
Positive moment at Midspan = 0.0272 x 8.75 x 1.5 x 3.425 x 3.425 = 3.6

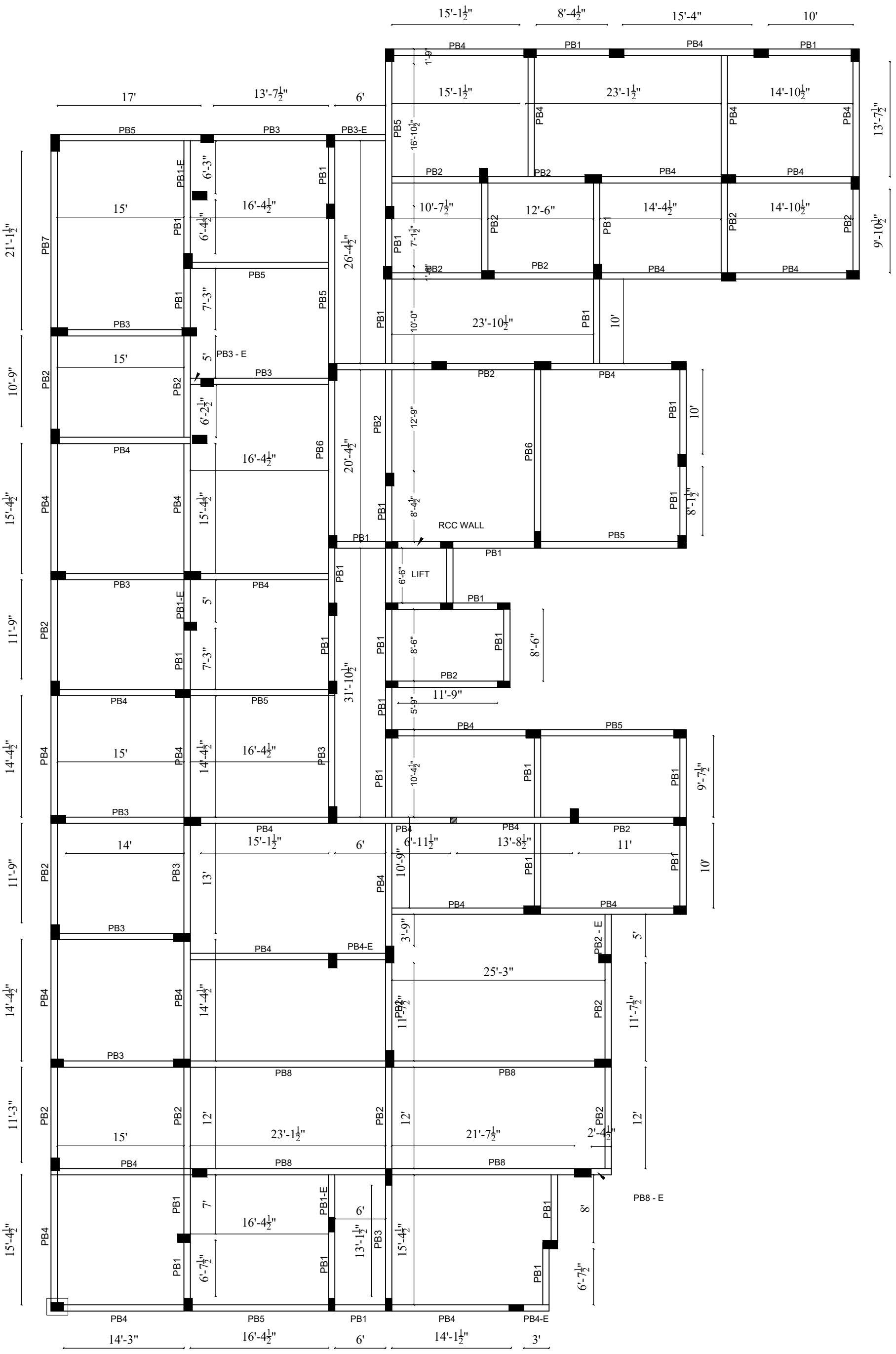
Area of Steel required = 8# @ 8"c/c
Area of Steel required = 8mm @ 8”c/c.for 5”thick Slab.
Hence it is Safe.

I certify that the above load calculations, analysis, and design are as per IS.875 Standards & Seismic forces are calculated per IS.1893 for Earthquake resistance structures.

T**herefore the Structure is sound and suitable for occupation.**

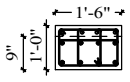
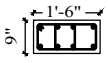
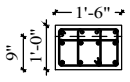
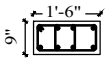
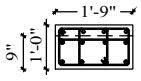
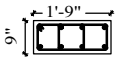
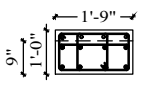
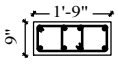
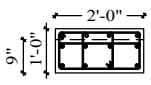
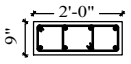
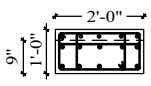
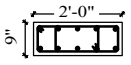


PROJECT: PROPOSED RESIDENTIAL BUILDING AT THIRUNEERMALAI MAIN ROAD,THIRUNEERMALAI,CHENNAI .COMPRISED IN S.NO: 306 OF THIRUNEERMALAI VILLAGE, KANCHIPURAM DISTRICT. THIRUNEERMALAI TOWN PANCHAYAT LIMIT. FOR: M/s N.M PROMOTERS	FOUNDATION	Sheet : ST - 1 Scale : F.T.S Date : 27.04.15 Designed by : Chakri Drawn by : Sankari Checked by : Venkat	M.VENKATA SUBBA RAO Civil & Structural Enginner Licensed Surveyor, Class-I (99) No.38/74, Bazullah Road, "Mass Towers" First Floor, T.Nagar, Chennai- 600 017. Tel- 2834 4962	W N S E



PROJECT: PROPOSED RESIDENTIAL BUILDING AT THIRUNEERMALAI MAIN ROAD,THIRUNEERMALAI,CHENNAI .COMPRISED IN S.NO: 306 OF THIRUNEERMALAI VILLAGE, KANCHIPURAM DISTRICT. THIRUNEERMALAI TOWN PANCHAYAT LIMIT. FOR: M/s N.M PROMOTERS	PLINTH BEAM LAYOUT	Sheet : ST - 2 Scale : F.T.S Date : 27.04.15 Designed by : Chakri Drawn by : Sankari Checked by : Venkat	M.VENKATA SUBBA RAO Civil & Structural Enginner Licensed Surveyor, Class-I (99) No.38/74, Bazullah Road, "Mass Towers" First Floor, T.Nagar, Chennai- 600 017. Tel- 2834 4962	W N S E

COLUMN SCHEDULE (M25)

NAME	COLUMN LOCATIONS	REINFORCEMENT		COLUMN TIES	NO.OF COLUMNS
		UPTO GROUND ROOF	TYPICAL FLOORS		
CO	G11	 (4) - 16Ø	-	8Ø @ 6"c/c	1
C1	D1 - E14 - E16 - E18 - E19 - E25 E27 - F16 - F18 - J14 - J16 - T10 T12 - T18 - W25 - V31	 (8) - 16Ø + (4) - 12Ø	 (8) - 16Ø	8Ø @ 6"c/c 4 - LEGGED	16
C2	A1 - A6 - A7 - B1 - B3 - C22 - C30 D14 - D16 - D30 - E12 - E31 - H25 L31 - C2 - T11 - T20 - W29	 (8) - 20Ø + (4) - 12Ø	 (8) - 20Ø	8Ø @ 6"c/c 4 - LEGGED	18
C3	A9 - A11 - A13 - A17 - B24 - C28 D4 - D18 - E1 - F23 - H29 - K1-M12 N2 - O11 - Q25 - T23 - U25 - V31	 (8) - 20Ø + (4) - 12Ø	 (8) - 20Ø	8Ø @ 6"c/c 4 - LEGGED	19
C4	A21 - B13 - C21 - B26 - C5 - D8 D27 - S31 - U29	 (8) - 25Ø + (4) - 16Ø	 (8) - 25Ø	8Ø @ 6"c/c 4 - LEGGED	9
C5	A24 - A30 - B9 - B11 - B15 - B17 D23 - E5 - E7 - E8 - M18 - P5 P29 - R7	 (8) - 25Ø + (4) - 16Ø	 (8) - 25Ø	8Ø @ 6"c/c 4 - LEGGED	14
C6	B6 - D11 - M23 - M10	 (10) - 25Ø + (5) - 16Ø	 (10) - 25Ø	8Ø @ 6"c/c 4 - LEGGED	4
				TOTAL	80 + 1 = 81

FOOTING DETAILS (M20)

NAME	FOOTING LOCATION	FOOTING SIZE	DEPTH		REINFORCEMENT (BOTHWAYS)		NUMBER OF FOOTINGS
		L x B	"D"	"d"	BAR -1	BAR -2	
F0	G11	3'-0" x 3'-0"	12"	8"	10@ 5" c/c	10@ 5" c/c	1
F1	J16 - T10 - T12 - T18 - W31 - W25	6'-9" x 6'-9"	17"	8"	10@ 5" c/c	10@ 5" c/c	6
F2	A1 - A6 - D30 - E19 - E31 - H25 - K1 - N2 - H25 K1 - N2 - R8 - T11 - T20 - W29	7'-6" x 7'-6"	19"	8"	10@ 5" c/c	10@ 5" c/c	12
F3	A7 - A9 - A11 - A13 - A17 - A21 - F23 - H29 - L31 O11 - P5 - Q25 - A7 - A9 - A11 - A13 - A17 - A21	9'-0" x 9'-0"	25"	10"	12@ 5" c/c	12@ 5" c/c	18
F4	A24 - A30 - C5 - M18 - P29 - Q7 - S31 - U29	10'-0" x 10'-0"	28"	10"	12@ 5" c/c	12@ 5" c/c	8
F5	B9 - D23	11'-0" x 11'-0"	30"	10"	12@ 5" c/c	12@ 5" c/c	2
F6	B7 - B11 - D11 - E7 - M10 - M23	11'-6" x 11'-6"	33"	10"	12@ 5" c/c	12@ 5" c/c	6
						TOTAL	52 + 1 = 53

COMBINED FOOTING DETAILS (M20)

NAME	FOOTING LOCATION	FOOTING SIZE	DEPTH	REINFORCEMENT (BOTHWAYS)		NUMBER OF FOOTINGS
		L x B	"D"	BAR -1	BAR -2	
CF1	C28 - C30	7'-0" x 14'-4½"	19"	12@ 5" c/c	12@ 5" c/c	1
CF2	B24 - B26 - C21 - C22	10'-0" x 30'-0"	28"	12@ 5" c/c	12@ 5" c/c	1
CF3	B13 - B15 - B17	11'-0" x 24'-1½"	30"	12@ 5" c/c	12@ 5" c/c	1
CF4	B1 - B3	9'-0" x 13'-1½"	25"	12@ 5" c/c	12@ 5" c/c	1
CF5	D1 - E1	6'-0" x 16'-0"	17"	12@ 5" c/c	12@ 5" c/c	1
CF6	D4 - E5	8'-9" x 20'-0"	28"	12@ 5" c/c	12@ 5" c/c	1
CF7	D7- E8	11'-0" x 18'-3"	30"	12@ 5" c/c	12@ 5" c/c	1
CF8	D14 - E12 - E14	13'-9" x 15'-3"	25"	12@ 5" c/c	12@ 5" c/c	1
CF9	M12 - J14	8'-9" x 16'-1½"	25"	12@ 5" c/c	12@ 5" c/c	1
CF10	D16 - D18	13'-0" x 13'-9"	25"	12@ 5" c/c	12@ 5" c/c	1
CF11	E16 - E18 - F16 - F18	14'-0" x 16'-1½"	25"	12@ 5" c/c	12@ 5" c/c	1
CF12	D27 - E25 - E27	14'-9" x 15'-6"	25"	12@ 5" c/c	12@ 5" c/c	1
					TOTAL	12

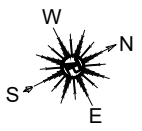
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FOR: M/s N.M PROMOTERS

FOUNDATION DETAILS

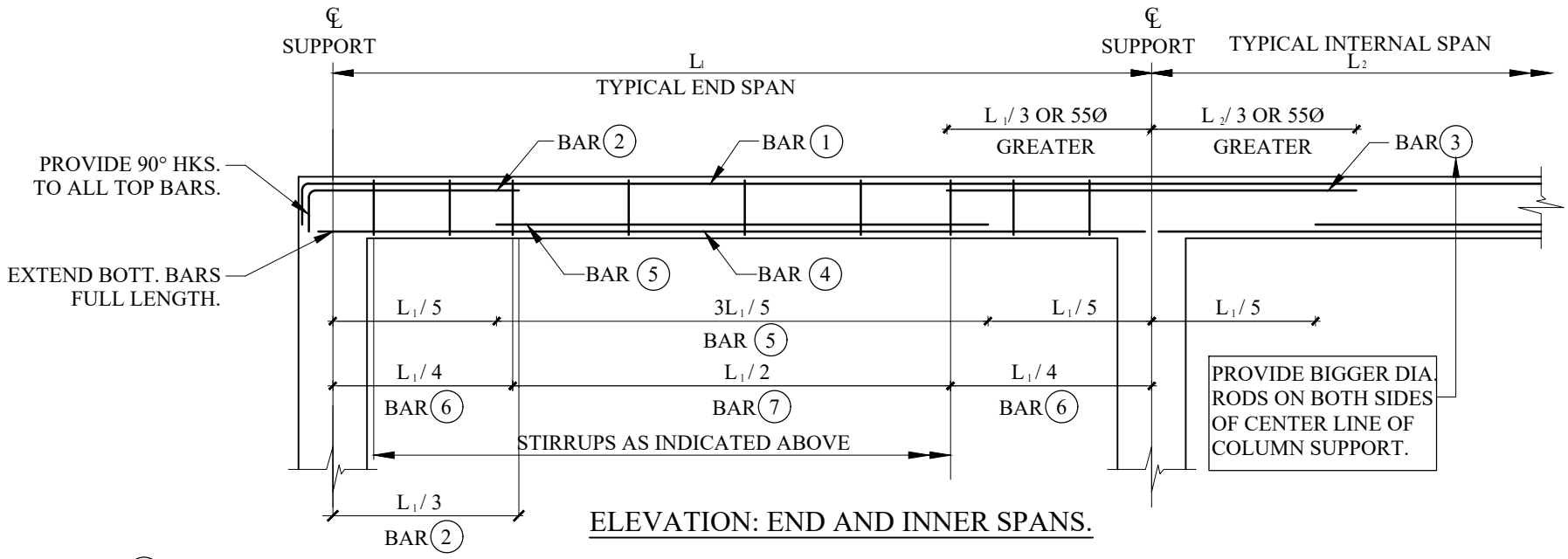
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Date	:	27.04.15
Designed by	:	Shiva
Drawn by	:	Chakri
Checked by	:	Shiva

M.VENKATA SUBBA RAO
Civil & Structural Enginner
Licensed Surveyor, Class-I (99)
No.38/74, Bazullah Road,
"Mass Towers" First Floor,
T.Nagar, Chennai- 600 017.
Tel- 2834 4962



PLINTH BEAM DETAILS

NAME	SIZE	TOP			BOTTOM		STIRRUPS	
		BAR-1	BAR-2	BAR-3	BAR-4	BAR-5	BAR-6	BAR-7
		CONT.	L/3 - SUP	2L/3-MIDSUP	CONT.	3L/5-MID	L/4 - SUP	L/2-MID SUP
PB1	9" x 12"	(2) - 10Ø	-	(1) - 10Ø	(2) - 10Ø	-	8Ø @ 6" c/c	8Ø @ 9" c/c
PB2	9" x 12"	(2) - 10Ø	(1) - 10Ø	(1) - 10Ø	(2) - 10Ø	(1) - 10Ø	8Ø @ 6" c/c	8Ø @ 9" c/c
PB3	9" x 12"	(2) - 10Ø	(1) - 12Ø	(2) - 12Ø	(2) - 12Ø	-	8Ø @ 6" c/c	8Ø @ 9" c/c
PB4	9" x 15"	(2) - 10Ø	(2) - 12Ø	(2) - 12Ø	(2) - 12Ø	(1) - 10Ø	8Ø @ 6" c/c	8Ø @ 9" c/c
PB5	9" x 15"	(2) - 10Ø	(1) - 16Ø	(1) - 16Ø	(2) - 12Ø	(1) - 16Ø	8Ø @ 6" c/c	8Ø @ 9" c/c
PB6	9" x 15"	(2) - 12Ø	(2) - 16Ø	(2) - 16Ø	(2) - 16Ø	(1) - 12Ø	8Ø @ 6" c/c	8Ø @ 9" c/c
PB7	9" x 18"	(2) - 16Ø	(1) - 20Ø	(1) - 20Ø	(2) - 16Ø	(1) - 20Ø	8Ø @ 6" c/c	8Ø @ 9" c/c
PB7	9" x 18"	(2) - 16Ø	(1) - 20Ø	(1) - 20Ø	(2) - 16Ø	(1) - 20Ø	8Ø @ 6" c/c	8Ø @ 9" c/c
RB1	21" x 24"	(3) - 25Ø	(2) - 25Ø	(2) - 25Ø	(3) - 25Ø	(2) - 25Ø	8Ø @ 6" c/c	8Ø @ 9" c/c
RB2	24" x 24"	(4) - 25Ø	(2) - 25Ø	(2) - 25Ø	(4) - 25Ø	(2) - 25Ø	8Ø @ 6" c/c	8Ø @ 9" c/c



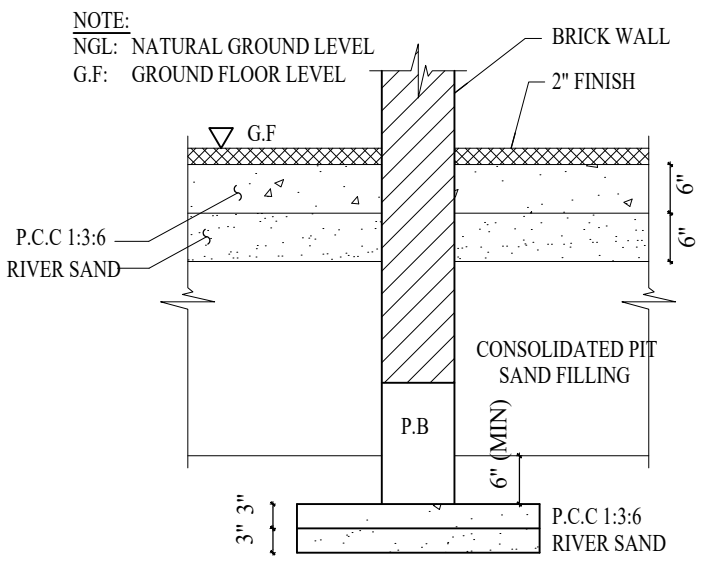
ELEVATION: END AND INNER SPANS.

BAR (?) - SEE BEAM SCHEDULE FOR BAR SIZES

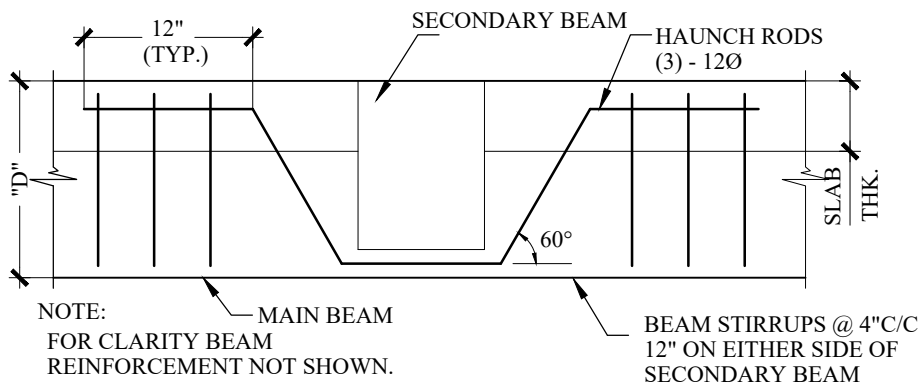
REFER TO PLANS FOR REQUIRED REINFORCEMENT.

REINF. COVER TO BE IN ACCORDANCE WITH CODE REQUIREMENTS.

TYPICAL BEAM REINFT. LAYOUT DETAIL



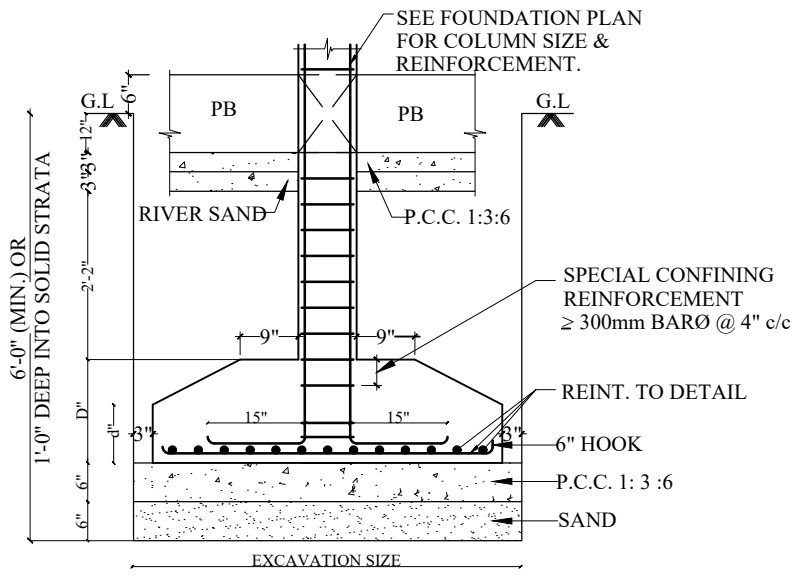
TYPICAL PLINTH BEAM DETAIL



HAUNCH DETAIL AT BEAM INTERSECTIONS

NOTES:

1. USE CONCRETE MIX 1:1:2 (M25) FOR COLUMN.
2. USE CONCRETE MIX 1:1½:3 (M20) FOR FOUNDATION AND PLINTH BEAM
3. USE STEEL GRADE Fe 500.
4. USE VIBRATOR FOR ALL CONCRETING WORKS.
5. USE MIN. LAP LENGTH OF 55Ø FOR ALL RODS.
6. THE WATER USED FOR CONCRETE SHOULD BE POTABLE (PH-7).
7. REMOVE BENDS IN ALL RODS (EVEN IN 6MM RODS).
8. AVOID LAPPING AT TENSION PORTIONS.
9. THE GAP BETWEEN THE TWO LAYERS OF REINFORCEMENT SHOULD BE MAINTAINED BY PROVIDING SPACER RODS (DISTANCE SHOULD NOT BE MORE THAN DIA. OF BAR OR 1").
10. CONCRETING NOT PERMITTED WITHOUT THE PERMISSION / APPROVAL/SITE INSPECTION FROM / BY STRUCTURAL ENGINEER.
11. Ø - INDICATES BAR DIAMETER IN mm.
12. COVER FOR FOUNDATION 3" (75 mm)
13. COVER FOR COLUMN 1½" (40 mm)
14. COVER FOR BEAM 1" (25 mm)

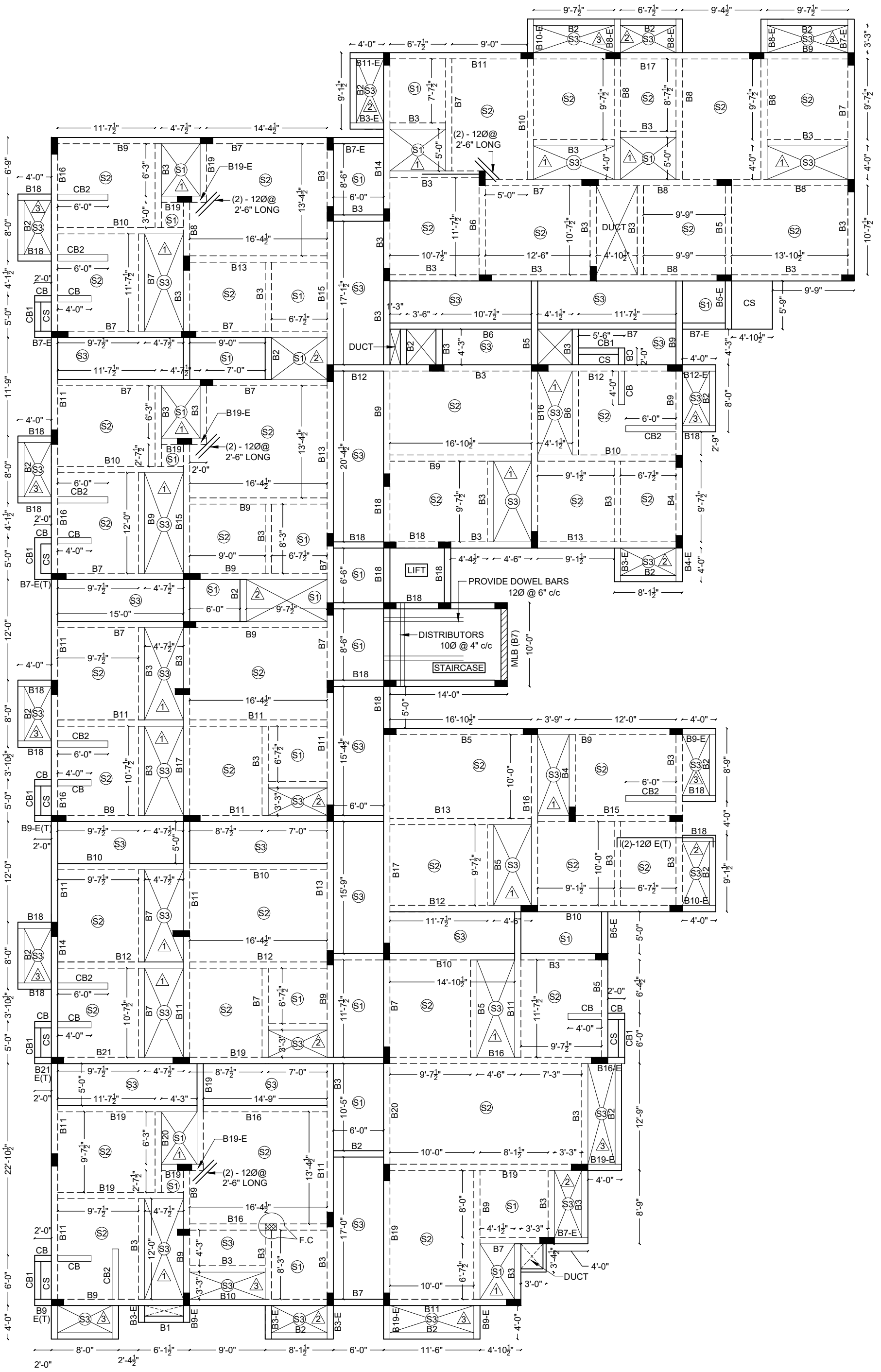


TYPICAL FOUNDATION DETAIL

PROJECT: PROPOSED RESIDENTIAL BUILDING AT THIRUNEERMALAI MAIN ROAD,THIRUNEERMALAI,CHENNAI .COMPRISED IN S.NO: 306 OF THIRUNEERMALAI VILLAGE, KANCHIPURAM DISTRICT. THIRUNEERMALAI TOWN PANCHAYAT LIMIT. FOR: M/s N.M PROMOTERS	FOUNDATION TYPICAL DETAILS	Sheet : ST - 4 Scale : F.T.S Date : 27.04.15 Designed by : Shiva Drawn by : Chakri Checked by : Shiva

M.VENKATA SUBBA RAO
Civil & Structural Enginner
Licensed Surveyor, Class-I (99)
No.38/74, Bazullah Road,
"Mass Towers" First Floor,
T.Nagar, Chennai- 600 017.
Tel- 2834 4962

W N S E



PROJECT:
PROPOSED RESIDENTIAL BUILDING AT THIRUNEERMALAI MAIN ROAD,THIRUNEERMALAI,CHENNAI .COMPRISED IN S.NO: 306 OF THIRUNEERMALAI VILLAGE, KANCHIPURAM DISTRICT. THIRUNEERMALAI TOWN PANCHAYAT LIMIT.

FOR: M/s N.M PROMOTERS

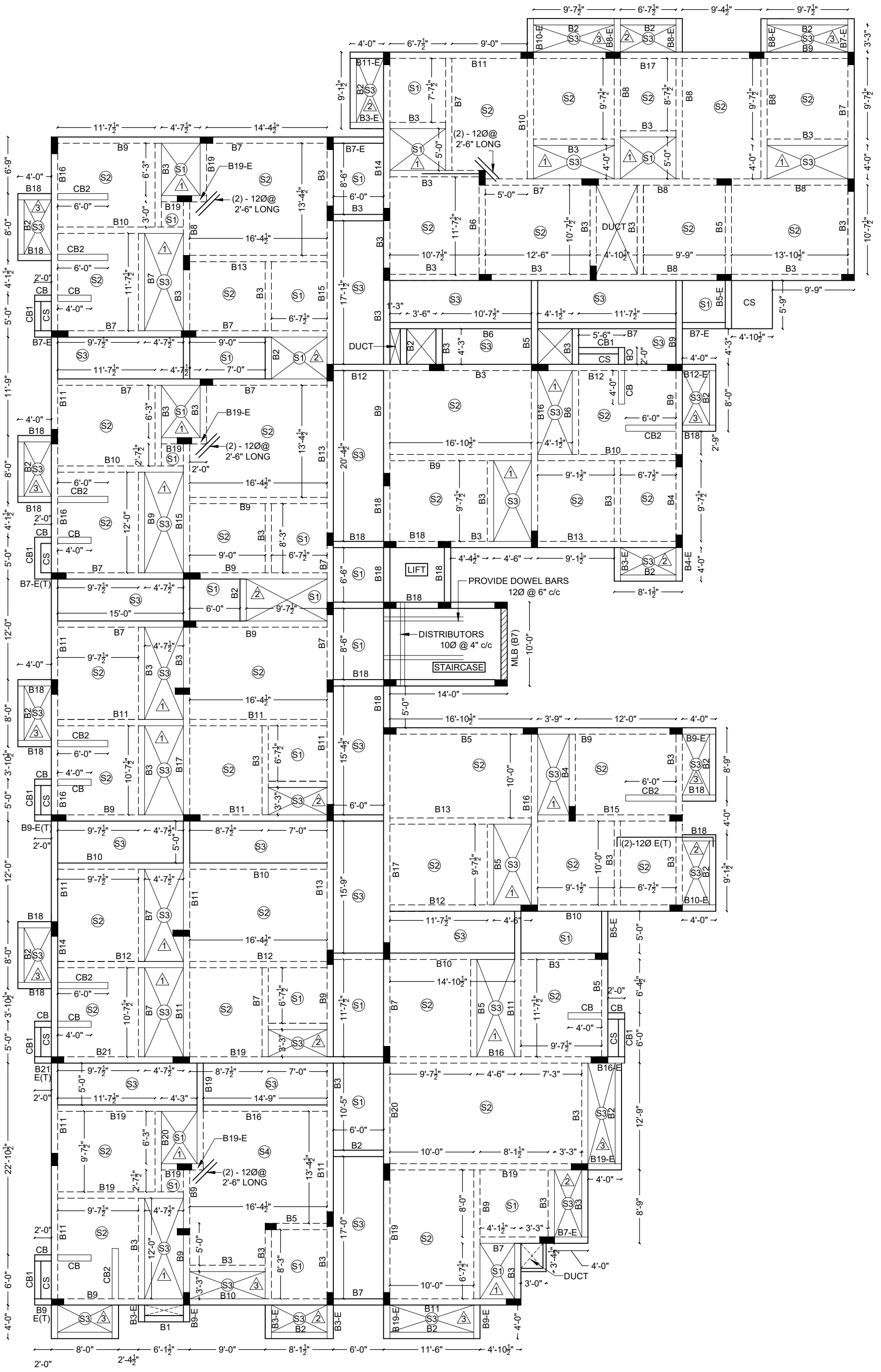
GROUND FLOOR

ROOF PLAN

Sheet	:	ST - 5
Scale	:	F.T.S
Date	:	27.04.15
Designed by	:	Shiva
Drawn by	:	Chakri
Checked by	:	Shiva

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W N S E



PROJECT:
PROPOSED RESIDENTIAL BUILDING AT THIRUNEERMALAI MAIN ROAD,THIRUNEERMALAI,CHENNAI .COMPRISED IN S.NO: 306 OF THIRUNEERMALAI VILLAGE, KANCHIPURAM DISTRICT. THIRUNEERMALAI TOWN PANCHAYAT LIMIT.

FOR: M/s N.M PROMOTERS

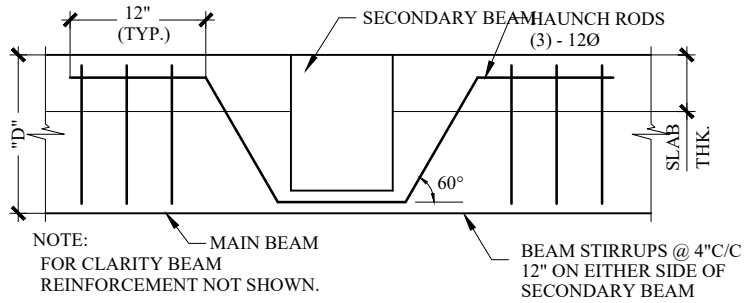
TYPICAL FLOOR

ROOF PLAN

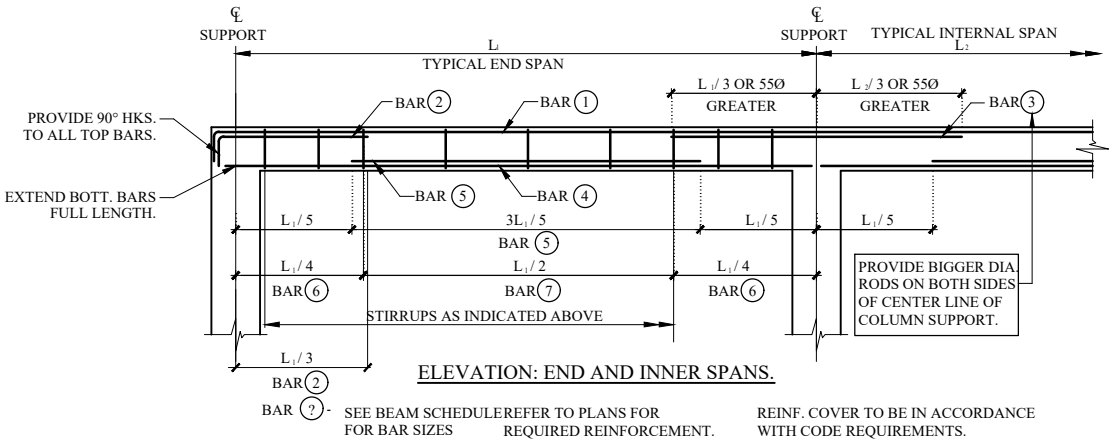
Sheet	:	ST - 6
Scale	:	F.T.S
Date	:	27.04.15
Designed by	:	Shiva
Drawn by	:	Chakri
Checked by	:	Shiva

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W N S E

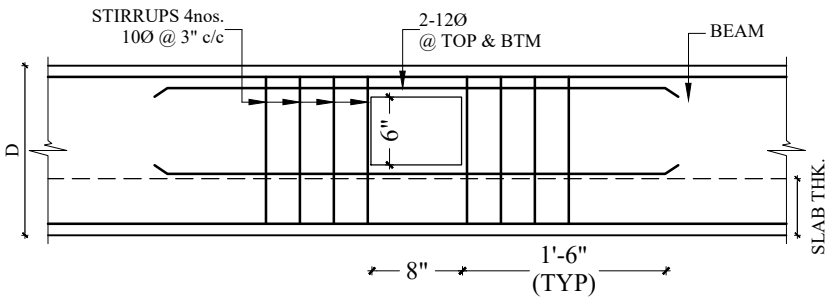


HAUNCH DETAIL AT BEAM INTERSECTIONS



ELEVATION: END AND INNER SPANS.

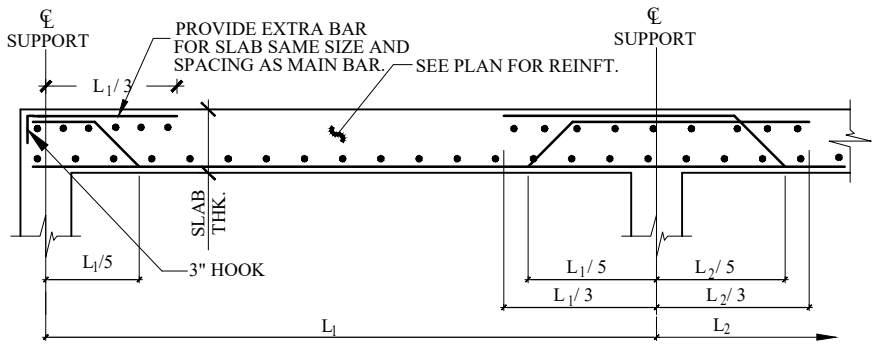
TYPICAL BEAM REINFT. LAYOUT DETAIL



TYP. DETAILS FOR SLEEVES

IN FLOOR BEAMS FOR SANITARY PIPES.

(LOCATION SHALL BE AS PER SANITARY DWG.)



TYPICAL SLAB DETAIL

LEGEND:-

B? - E - BEAM TOP & BOTTOM BARS SHOULD BE EXTENDED

B? - E(T) - BEAM TOP BARS SHOULD BE EXTENDED

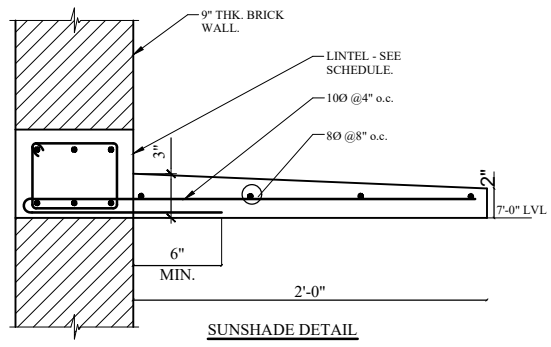
1 - SUNKEN BY 10"

2 - SUNKEN BY 6"

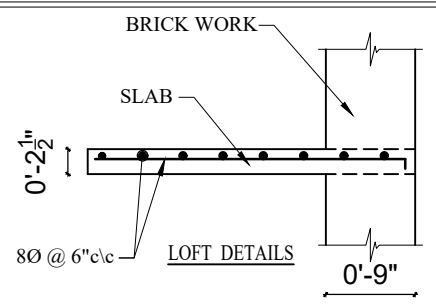
3 - SUNKEN BY 3"

ROOF SLAB DETAILS				
SLAB ID.	THICKNESS (INCHES)	REINFORCEMENT		TYPE OF SLAB
		SHORT SPAN	LONG SPAN	
S1	5"	8Ø @ 6"c/c	8Ø @ 8"c/c	TWO WAY
S2	5"	10Ø @ 6"c/c	8Ø @ 8"c/c	TWO WAY
S3	5"	8Ø @ 6"c/c	8Ø @ 8"c/c	ONE WAY
S4	6"	10Ø @ 6"c/c	8Ø @ 8"c/c	TWO WAY

BEAM DETAILS								
NAME	SIZE	TOP			BOTTOM		STIRRUPS	
		BAR - 1	BAR - 2	BAR - 3	BAR - 4	BAR - 5	BAR - 6	BAR - 7
		CONTINUOUS	L/3 SUP	2L/3 MID	CONTINUOUS	3L/5MID	L/4SUP	L/2MID
B1	9" x 15"	(2) - 12Ø	-	-	(2) - 12Ø	-	8Ø @ 6" c/c	8Ø @ 8" c/c
B2	9" x 15"	(2) - 12Ø	(1) - 12Ø	(1) - 12Ø	(2) - 12Ø	(1) - 12Ø	8Ø @ 6" c/c	8Ø @ 8" c/c
B3	9" x 15"	(2) - 12Ø	(1) - 16Ø	(1) - 16Ø	(2) - 12Ø	(1) - 16Ø	8Ø @ 6" c/c	8Ø @ 8" c/c
B4	9" x 15"	(2) - 12Ø	(1) - 20Ø	(1) - 20Ø	(2) - 16Ø	(1) - 12Ø	8Ø @ 6" c/c	8Ø @ 8" c/c
B5	9" x 15"	(2) - 12Ø	(1) - 25Ø	(1) - 25Ø	(2) - 16Ø	(1) - 16Ø	8Ø @ 6" c/c	8Ø @ 8" c/c
B6	9" x 18"	(2) - 12Ø	(1) - 12Ø	(1) - 12Ø	(2) - 12Ø	(1) - 12Ø	8Ø @ 6" c/c	8Ø @ 8" c/c
B7	9" x 18"	(2) - 12Ø	(1) - 16Ø	(1) - 16Ø	(2) - 16Ø	-	8Ø @ 6" c/c	8Ø @ 8" c/c
B8	9" x 18"	(2) - 16Ø	(1) - 12Ø	(1) - 12Ø	(2) - 16Ø	(1) - 12Ø	8Ø @ 6" c/c	8Ø @ 8" c/c
B9	9" x 18"	(2) - 16Ø	(1) - 16Ø	(1) - 16Ø	(2) - 16Ø	(2) - 16Ø	8Ø @ 6" c/c	8Ø @ 6" c/c
B10	9" x 18"	(2) - 16Ø	(1) - 20Ø	(1) - 20Ø	(2) - 20Ø	(1) - 12Ø	8Ø @ 6" c/c	8Ø @ 6" c/c
B11	9" x 18"	(2) - 16Ø	(1) - 25Ø	(1) - 25Ø	(2) - 20Ø	(1) - 16Ø	8Ø @ 6" c/c	8Ø @ 6" c/c
B12	9" x 18"	(2) - 16Ø	(1) - 25Ø	(1) - 25Ø	(2) - 20Ø	(1) - 20Ø	8Ø @ 6" c/c	8Ø @ 6" c/c
B13	9" x 18"	(2) - 16Ø	(2) - 20Ø	(2) - 20Ø	(2) - 25Ø	(1) - 12Ø	8Ø @ 6" c/c	8Ø @ 6" c/c
B14	9" x 18"	(2) - 20Ø	(2) - 20Ø	(2) - 20Ø	(2) - 25Ø	(1) - 16Ø	8Ø @ 6" c/c	8Ø @ 6" c/c
B15	9" x 18"	(2) - 20Ø	(2) - 25Ø	(2) - 25Ø	(2) - 25Ø	(1) - 20Ø	10Ø @ 6" c/c	8Ø @ 8" c/c
B16	9" x 21"	(2) - 20Ø	(2) - 25Ø	(2) - 25Ø	(2) - 25Ø	(1) - 25Ø	10Ø @ 6" c/c	10Ø @ 8" c/c
B17	9" x 24"	(2) - 20Ø	(2) - 25Ø	(2) - 25Ø	(2) - 25Ø + (2) - 20Ø	(2) - 20Ø	10Ø @ 6" c/c	10Ø @ 8" c/c
B18	9" x 15"	(2) - 16Ø	-	-	(2) - 16Ø	-	8Ø @ 6" c/c	8Ø @ 8" c/c
B19	9" x 21"	(2) - 20Ø	(2) - 20Ø	(2) - 20Ø	(2) - 20Ø	(2) - 20Ø	10Ø @ 6" c/c	10Ø @ 8" c/c
B20	9" x 21"	(2) - 20Ø	(1) - 16Ø	(1) - 16Ø	(2) - 20Ø	(1) - 16Ø	8Ø @ 6" c/c	8Ø @ 8" c/c
B21	9" x 24"	(2) - 16Ø	(2) - 20Ø	(2) - 20Ø	(2) - 20Ø	(1) - 25Ø	8Ø @ 6" c/c	8Ø @ 8" c/c
CB	9" x 5"	(3) - 12Ø	-	-	(2) - 12Ø	-	8Ø @ 6" c/c	8Ø @ 6" c/c
CB1	9" x 5"	(2) - 12Ø	-	-	(2) - 12Ø	-	8Ø @ 6" c/c	8Ø @ 6" c/c
CB2	9" x 5"	(2) - 16Ø	-	-	(2) - 16Ø	-	8Ø @ 6" c/c	8Ø @ 8" c/c



SUNSHADE DETAIL



LINTEL NOTES

(8" MIN. BEARING EACH END.)

WHERE LINTELS ARE INDICATED ON THE ARCHITECTURAL PLANS THEY SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE, UNLESS NOTED OTHERWISE.

1. CONCRETE BLOCK LINTEL SCHEDULE:

LINTEL SCHEDULE				
OPENING WIDTH	BEAM SIZE	REINFORCEMENT		STIRRUP SIZE
		TOP	BOTTOM	
UP TO 6'-0"	9" x 6" 4½" x 6"	(2) - 8Ø	(2) - 10Ø	8Ø @6" c/c
6'-0" TO 8'-0"	9" x 6"	(3) - 8Ø	(3) - 10Ø	8Ø @6" c/c
8'-0" TO 12'-0"	9" x 9"	(2) - 10Ø	(2) - 10Ø + (1) -12Ø	8Ø @6" c/c

NOTE:-

1. USE CONCRETE MIX M20 (1 : 1½ :3) FOR BEAMS & SLAB.
2. USE STEEL GRADE Fe 415.
3. USE VIBRATOR FOR ALL CONCRETING WORKS.
4. USE MIN. LAP LENGTH OF 55Ø FOR ALL RODS.
5. THE WATER USED FOR CONCRETE SHOULD BE POTABLE (PH-7).
6. REMOVE BENDS IN ALL RODS (EVEN IN 6MM RODS).
7. AVOID LAPPING AT TENSION PORTIONS.
8. THE GAP BETWEEN THE TWO LAYERS OF REINFORCEMENT SHOULD BE MAINTAINED BY PROVIDING SPACER RODS (DISTANCE SHOULD NOT BE MORE THAN DIA. OF BAR OR 1").
9. IN ALL CANTILEVER PORTION THE BEAM TOP RODS SHOULD BE EXTENDED.
10. Ø - INDICATES ROD DIAMETER IN MM.
11. CONCRETE MIX M25 (1:1:2) FOR COLUMN
12. COVER FOR COLUMN 1½"
13. COVER FOR BEAM 1"
14. COVER FOR SLAB ¾"
15. ALL SLABS ARE 5"TK UNLESS OTHERWISE SPECIFIED.
16. ALL SERVICE AREA SLABS SHOULD BE SUNKEN BY 3" UNLESS OTHERWISE NOTED.
17. CONCRETING NOT PERMITTED WITHOUT THE PERMISSION / APPROVAL/SITE INSPECTION FROM / BY STRUCTURAL ENGINEER.

PROJECT:

PROPOSED RESIDENTIAL BUILDING AT THIRUNEERMALAI MAIN ROAD,THIRUNEERMALAI,CHENNAI .COMPRISED IN S.NO: 306 OF THIRUNEERMALAI VILLAGE, KANCHIPURAM DISTRICT. THIRUNEERMALAI TOWN PANCHAYAT LIMIT.

FOR: M/s N.M PROMOTERS

ROOF DETAILS

Sheet	:	ST - 7
Scale	:	F.T.S
Date	:	27.04.15
Designed by	:	Shiva
Drawn by	:	Chakri
Checked by	:	Shiva

M.VENKATA SUBBA RAO
Civil & Structural Enginner
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W N S E

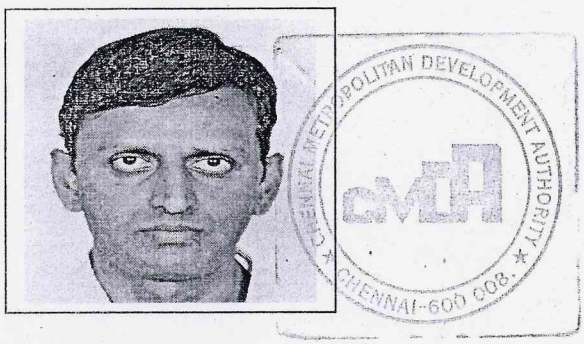
CHENNAI METROPOLITAN DEVELOPMENT AUTHORITY
'ThalamuthuNatarajan Building', No.1, Gandhi Irwin Road,
Egmore, Chennai-600 008.

PROFESSIONAL REGISTRATION CERTIFICATE

This is to certify that the **Thiru M.VENKATA SUBBARAO** has enrolled as **RegisteredStructural Engineer Grade-I (SE)** with Chennai Metropolitan Development Authority (CMDA) who has the qualification of **M.S.,(Civil Engg.)**and experience in the relevant field for **20 years**.

He has been given the Registration No.**SE/GR-I/2019/03/063** Renewed on **28.03.2024.** 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 **27.03.2029**.



28/3/24.

(A. MEGANATHAN)
Superintendent

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
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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.