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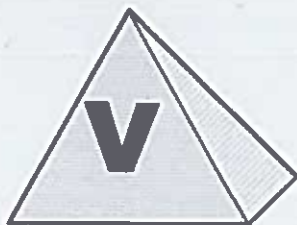
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Official Property Record





VENUS BUILDERS

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COLUMN AND FOUNDATION DESIGN FOR STILT+5 FLOORS
AFFRODABLE RESIDENTIAL APPARTMENT BUILDING IN PLOT:1, 2, 3, 4,
5, 6, ANBAZHALGAN STREET, T.SNO: 20, 21, 24, 26, 29&30, WARD:AH,
BLOCK NO - 23, K.SATHANUR VILLAGE, ZONE-IV, TIRUCHIRAPPALLI
CITY CORPORATION.

The column and foundation shall be designed for the maximum critical span of
(24'2") 7.37m

DESIGN:

Live load	-	300Kg/m ²
Dead load	-	(1.00x1.00x0.13x2400) =312Kg/m ²
Live load + Dead load		=612Kg/m ²
Load to be transferred to the Beam	-	1x3.7x612x1 =2264.4Kg/m ² (Or) 2300Kg/m
Load to be taken by column for the span of 7.37m	-	2300 x 7.37m = 16,951Kg/floor

Since the proposed building will have S+5.

The column shall be designed for 6 floors.

Hence the total load taken by a critical column - 6 x 16,651Kg/floor = 1, 01,706 Kg
(OR) 1, 02,000Kg (102 Tons)

Assuming Self weight of column & foundation @ 10%

Total load taken by a column 91.8 Tons.

Using R.C.C. M20 mix concrete and Fe 550 steel.

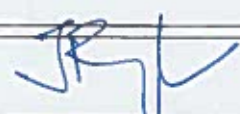
Assuming area of column Ac

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SE/Gr.II/TLPA/JULY2019/145

LOAD CALCULATION DETAILS FOR PROPOSED CONSTRUCTION OF STILT+5 FLOORS AFFORDABLE RESIDENTIAL APPARTMENT BUILDING IN PLOT:1,2,3,4,5,6, ANBAZHAGAN STREET,T.S NO : 20,21,24,26,29&30,WARD:AH, BLOCK NO - 23, K.SATHANUR VILLAGE, ZONE-IV, TIRUCHIRAPPALLI CITY CORPORATION.

LOAD CALCULATIONS AS PER IS 875

Sl.No	Description	Length in 'm'	Width in 'm'	Depth in 'm'	Sp.Wt	Total Load in KN
1	<u>LOADING ON SLAB/Sq.m</u> <u>Input</u>					
	Thickness of Slab	0.13	m			
	Live Load	3	KN/m ²			
	Self Weight of Slab	1 x	1 x	0.13 x	24	3.12
	Live Load	1 x	1 x	1 x	3	3
	Floor finish load	1 x	1 x	1 x	2	2
	<u>Total Load</u>					8.12 KN/m ²
2	<u>LOADING ON OUTER BEAM/M</u> <u>Input</u>					
	Slab Length for distribution of load	4.83	m			
	Width of Beam	0.20	m			
	Depth of Beam	0.45	m			
	Thick&Height of Brick Wall	0.20	m	3.05	m	
	Self Weight of Beam	1 x	0.20 x	0.45 x	24	2.16
	Brick wall Weight	1 x	0.20 x	3.05 x	20	12.2
3	<u>LOADING ON INNER BEAM/M</u>					
	Slab Length for distribution of load	7.34	m			
	Width of Beam	0.20	m			
	Depth of Beam	0.60	m			
	Thick&Height of Brick Wall	0.20	m	3.05	m	
	Self Weight of Beam	1 x	0.20 x	0.60 x	24	2.88
	Brick wall Weight	1 x	0.20 x	3.05 x	20	12.20
	Load from Slab	7.34 x	1 x	1 x	8.12	59.601
	<u>Total</u>					74.681 KN/M


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Area of column main rod 1.5% of A_c

$$P_u = 0.4 \times 200 \times A_c + 0.67 \times f_y \times A_{st}$$

$$1,02,000 = 0.4 \times 200 \times (A_c - 0.015A_c) + 0.67 \times 5500 \times 0.015A_c$$

$$1,02,000 = 78.4A_c + 73.7A_c$$

$$134.1A_c = 1,02,000$$

$$A_c = 760.63 \text{ cm}^2$$

Hence Provided Column Size as 20 cm x 60 cm

$$\begin{aligned} \text{Area of column } A_c &= 20 \times 60 = 1200 \text{ cm}^2 \\ &> 760.63 \text{ cm}^2 \end{aligned}$$

Hence safe.

$$\text{Ast. Required } 1.5 / 100 \times 1200 = 18 \text{ cm}^2$$

Hence provided 10 nos of 20mm dia bars

$$\begin{aligned} 20\text{mm} &= 10 \times 3.14 = 31.4 \text{ cm}^2 \\ &= 31.4 \text{ cm}^2 > 18 \text{ cm}^2 \end{aligned}$$

Hence Safe

DESIGN OF FOUNDATION:

From soil test report the safe bearing capacity of soil can be taken as 40 T/m^2

$$\text{Size of footing } 102 \text{ T} / 40 \text{ T m}^2 = 2.55 \text{ m}^2$$

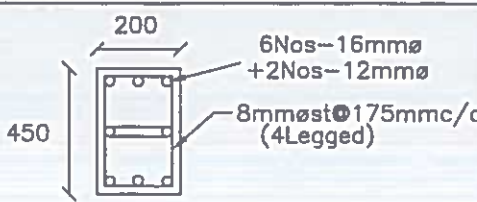
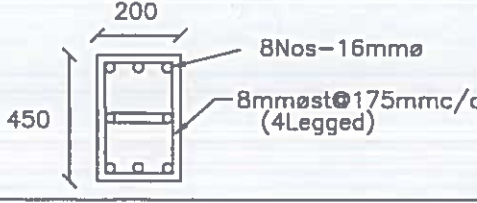
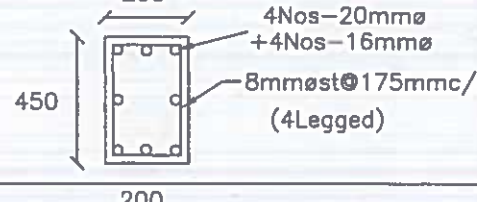
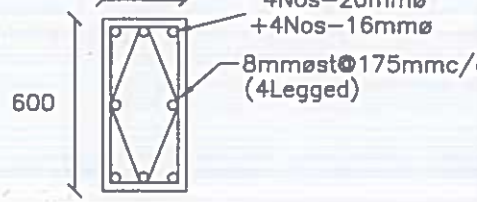
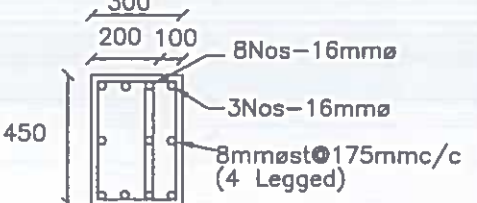
Provide isolated footing to the size of 1.6 m x 1.6 m

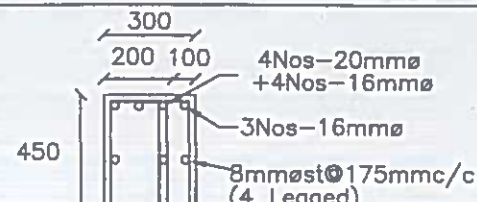
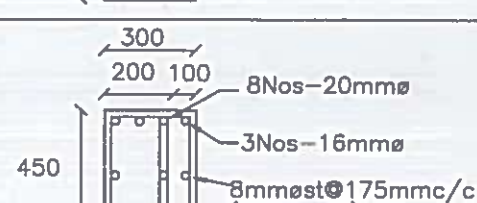
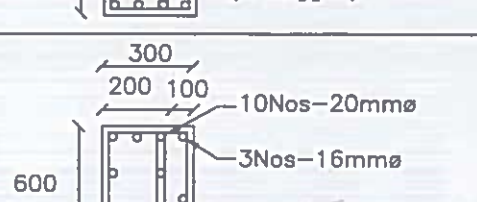
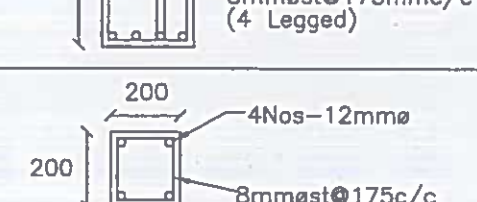
$$\begin{aligned} \text{Hence area of footing provided} &= 2.44 \text{ m} \times 2.44 \text{ m} = 5.95 \text{ m}^2 \\ &> 2.55 \text{ m}^2 \end{aligned}$$

Hence Safe.


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COLUMN CROSS SECTION DETAILS FOR PROPOSED CONSTRUCTION OF STILT+5 FLOORS AFFORDABLE RESIDENTIAL APARTMENT BUILDING IN PLOT:1,2,3,4,5,6, ANBAZHANGAN STREET,T.S NO : 20,21,24,26,29&30, WARD:AH, BLOCK NO - 23, K.SATHANUR VILLAGE, ZONE-IV, TIRUCHIRAPPALLI CITY CORPORATION.

COLUMN TYPE	C/S OF COLUMN
TYPE 1	
TYPE 2	
TYPE 3	
TYPE 4	
TYPE 5	

COLUMN TYPE	C/S OF COLUMN
TYPE 6	
TYPE 7	
TYPE 8	
SC	

NOTE:

Structure Engineer Takes no Responsibility in the Violation /Deviation of setback &FSI Norms in the DCR

NOTE

RCC MIX - M20
 REINFORCEMENT - Fe415
 CLEAR COVER FOR COLUMN = 40mm
 CLEAR COVER FOR COLUMN FOOTING = 50mm

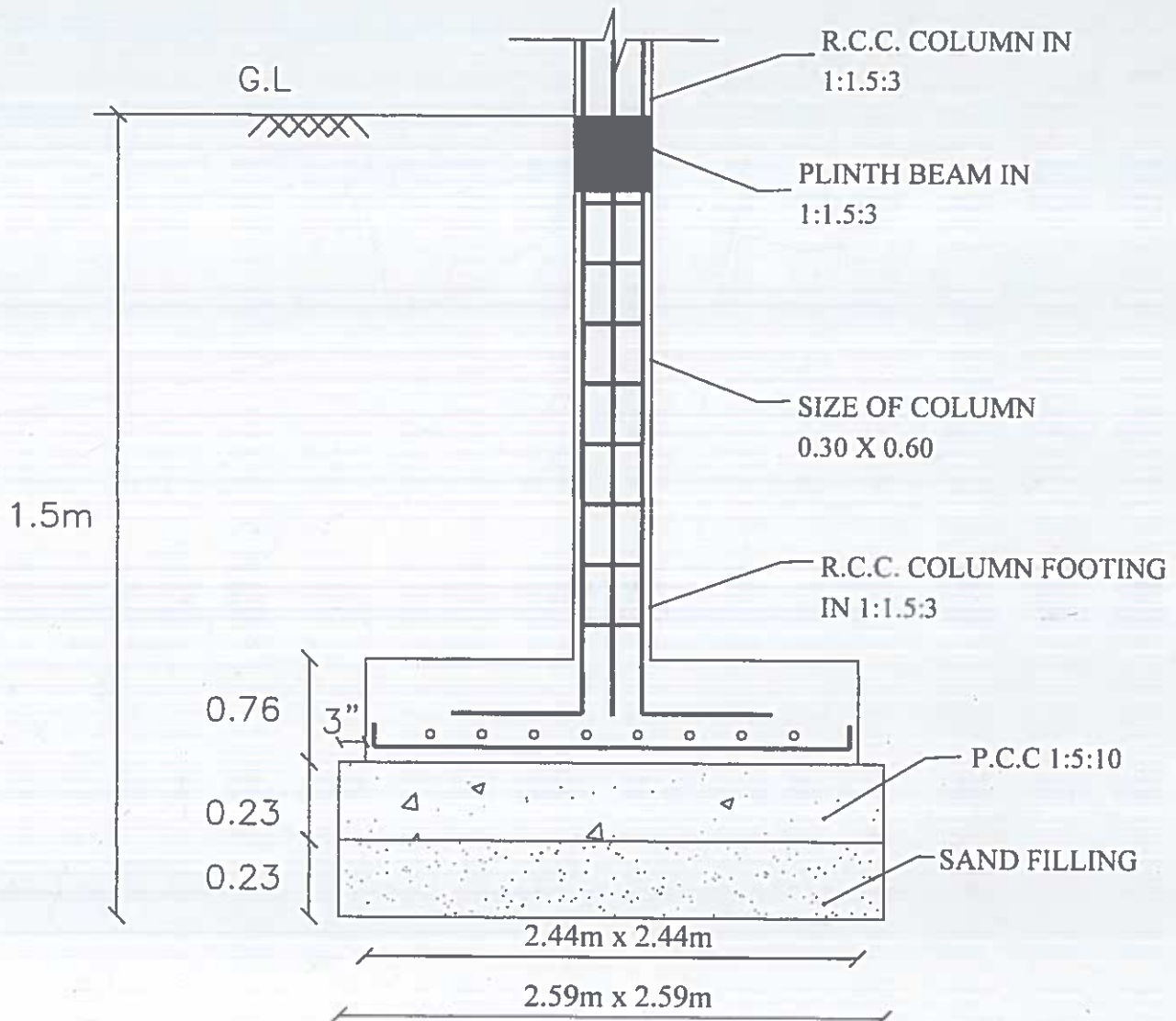
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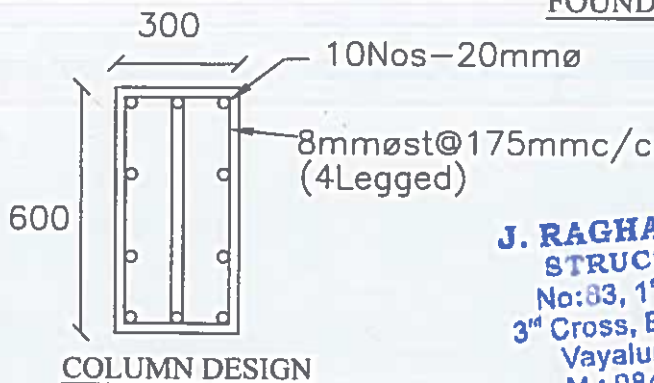
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 AMMAYAPPA NAGAR, VAYALUR
 ROAD, TRICHY - 17
 CELL - 98424 - 45699

COLUMN AND FOUNDATION DESIGN FOR STILT+5 FLOORS AFFRODABLE RESIDENTIAL APPARTMENT BUILDING IN PLOT:1,2,3,4,5,6, ANBAZHALGAN STREET,T.S NO : 20,21,24,26,29&30,WARD:AH, BLOCK NO - 23, K.SATHANUR VILLAGE, ZONE-IV, TIRUCHIRAPPALLI CITY CORPORATION.



FOUNDATION DETAILS



COLUMN DESIGN

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Load on Plinth beam:

Wall thickness = 230 TK

Wall height = 3.05m

Beam Size = 230x450

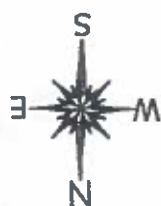
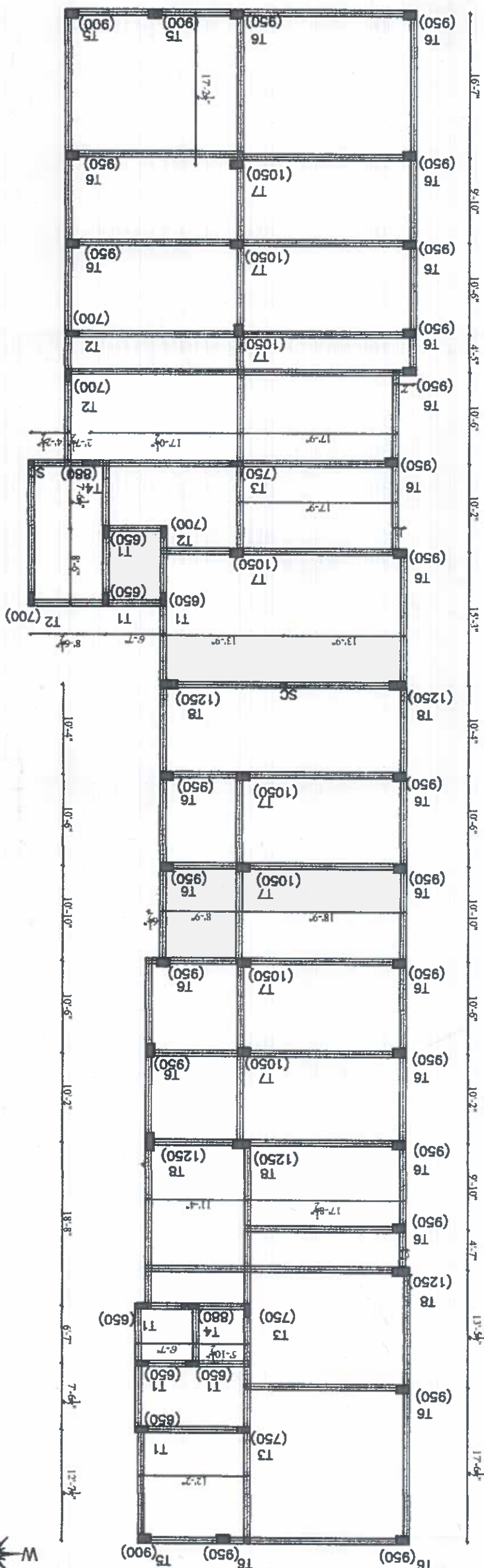
Self weight of beam = 2.58KN/Sqm

Wall Loads acting on plinth beam = $0.23 \times 19 \times 3.05 \text{m} = 13.329 \text{ KN/m}$

Total Loads on plinth beam = 15.909 KN/Sqm

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