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STRUCTURAL DESIGN OF FOUNDATION AND COLUMN DESIGN FOR THE PROPOSED CONSTRUCTION OF AFFORDABLE RESIDENTIAL APARTMENT BUILDING IN T.S.NO.1292/30, WARD : A, BLOCK : 39 AT MELUR VILLAGE, SRIRANGAM, ZONE - I, TRICHIRAPPALLI CORPORATION.

Design

Foundation and shall be designed for the maximum span of 7.00m

Live Load = 400 kg/m^2

Dead Load = (1.00 x 1.00 x 0.10 x 2400)

Self weight of slab = 240 kg/m^2

Floor Finish = 100 kg/m^2

Total dead load = 340 kg/m^2

Live load + Dead Load = 400 + 340 = 740 kg/m^2

Load to be transferred to beam = 1 x 3x 740 x 1 = 2200 kg/m

Load to be taken by column = 2200 x 7.00 = 15400 kg

Since the proposed building will have Basement + 3 upper floors

The column shall be designed for 4 floors i.e. 4 x 15400 = 61600 kg

(or) 70000 kg(70 Tones)

Using RCC M_{20} mix and Fe 550 Steel

Assuming area of column = AC cm^2

Area of column main rod = 4% of AC

Pu = 0.4 x 200 x Ac + 0.67 x fy x Ast

70000 = 0.4 x 200 x (Ac-0.04Ac) + 0.67 x 5500 x 0.04Ac

70000 = 0.4 x 200 x 0.96Ac + 147.4Ac

70000= 76.8Ac +147.4 Ac

70000 = 224.2Ac

Ac = 312.22 cm^2

Provide column to the size of 23 cm x 38 cm

Hence Ac = 874 cm^2 > 312.22 cm^2

Hence safe.

Ast required = 0.4 x 874 = 34.96 cm^2

Provide 10 No's of 25ϕ i.e. 10 x 4.91 = 49.10 cm^2 > 34.96 cm^2

For SRI KESAVAA BUILDERS

PARTNER

For Navaneetha Property Developers

Managing Partner

Design of Foundation:

From soil test report the safe bearing capacity of soil can be taken as $20T/m^2$

Size of footing required = $70T/20T/m^2 = 3.5\ m^2$

Hence provide isolated footing to the size of 2.0 m x 2.0 m = $4m^2 > 3.5\ m^2$

Hence safe.

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CONSULTING STRUCTURAL ENGINEER
Corporation BL.S No: 086/LS/2021/00012
Registered Engineer
Reg. No: RE/GR-I/DTCP/TRICHY/JULY-2024/23 ON 05.07.2024
Registered Structural Engineer
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Kesavaraj Building, Thillainagar,
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For SRI KESAVAA BUILDERS

PARTNER

For Navaneetha Property Developers

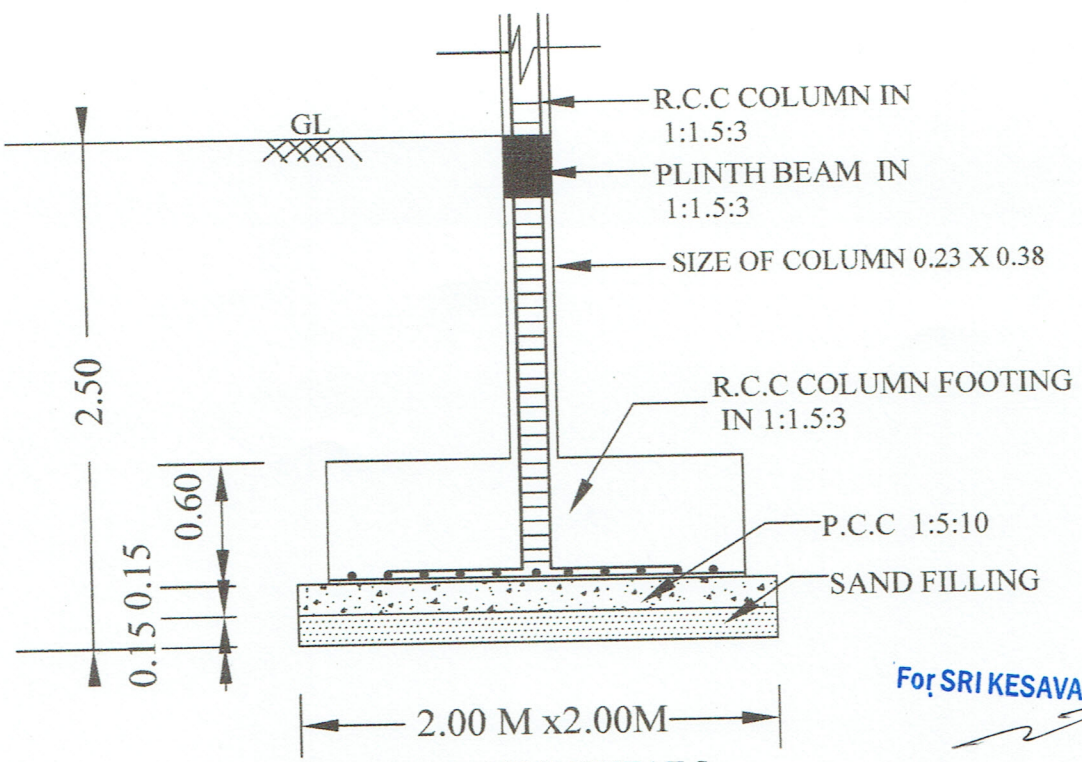
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Date .....

COLUMN AND FOUNDATION DESIGN FOR PROPOSED CONSTRUCTION OF AFFORDABLE RESIDENTIAL APARTMENT BUILDING IN T.S.NO.1292/30, WARD : A, BLOCK : 39 AT MELUR VILLAGE, SRIRANGAM, ZONE - I, TRICHIRAPPALLI CORPORATION.

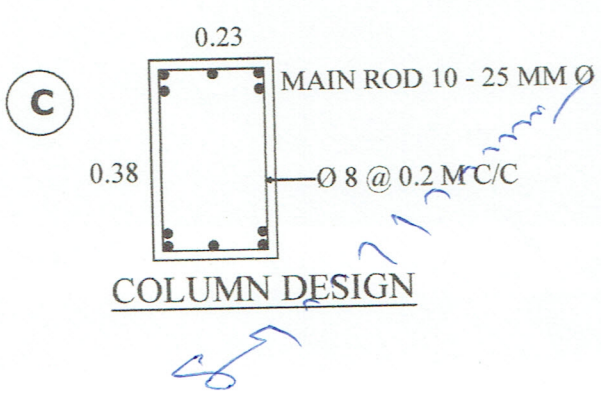


FOUNDATION DETAILS
NOT TO SCALE

For SRI KESAVAA BUILDERS

PARTNER

ENGINEER.



COLUMN DESIGN

Er.K. MARIMUTHU,B.E.,M.I.STRUCT.E.M.I.C.I.,
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