AREA OF FOOTING

SIZE OF SQUARE COLUMN 230 X230 MM (DEPTH AND WIDTH OF COLUMN)

CARRYING LAOD-212 KN

SBC-150KN/M2

AS PER IS CODE ADD 10% LOAD EXTRA

SAY 212 + 21.2=233.2 KN

AREA OF FOOTING AS PER FORMULA

LOAD/ SBC =233.2/150= 1.55 M2=Af

LENGTH OF FOOTING CALCULATION

Lf= (D-B)/2 + (D-B) X(D-B)/4 + Af = Af

= 230-230/2 + (230-230) X(230-230)/4+1.55

=0 +0+1.55 =1.55

1.55= =1.25 MM

OFF SET OF FOOTING FROM COLUMN

(Lf –D)/2 = 1250 -230 /2= 510 MM

510 + 230+ 510 = 1250 MM

SAY SIZE OF FOOTING 1250 X 1250 MM AND MAKE DEPTH MIN. 150 MM

DEPTH OF FOUNDATION

RANKINES FORMULA

MIN.DEPTH OF FOUNDATION

P/W(1-SIN 0/1+ SIN 0)2

P = STRUCTURAL LOAD ON FOUNDATION /BUILDING LOAD=KG/M2

W= DENSITY OF SOIL=KG/M3

0 = ANGLE OF REPOSE OR INTERNALTHU FRICTION OF SOIL.

example

=150kn/1600 to 1800 kg/m3 (1-sin 25/1+sin 25)2

=15000/1700 x (0.58/1.42)2

=8.8 x (1-0.42/1+0.42)2

=8.8x0.19

=1.672m say =1.67 m 5’ 6’’

THUMB RULE

1.5 TIMES OF WIDTH OF FOUNDATION.

IF SIZE OF FOOTING IS 1.22 X1.22M

DEPTH OF Foundation=1.5 times x1.22= 1.83m (6’0’’)

DEPTH OF FOOTING

FACTOR MOMENT (MU) /0.138 XFCK XLENGTH OF FOOTING

MU = P X LF (LF-DEPTH OF CLOUMN/2)2 X 1/2

= 150X 1.25 (1.25- 0.23/2)2 X 1/2

= 150X1.25 X 0.261 X0.5

=24.39 KNM

DEPTH OF FOOTING

= MU/ (0.138XFCKXLF)

= 24.39 X1000000/ (0.138X 20X1250)

=24390000/3450= 85 MM SAY 100 MM