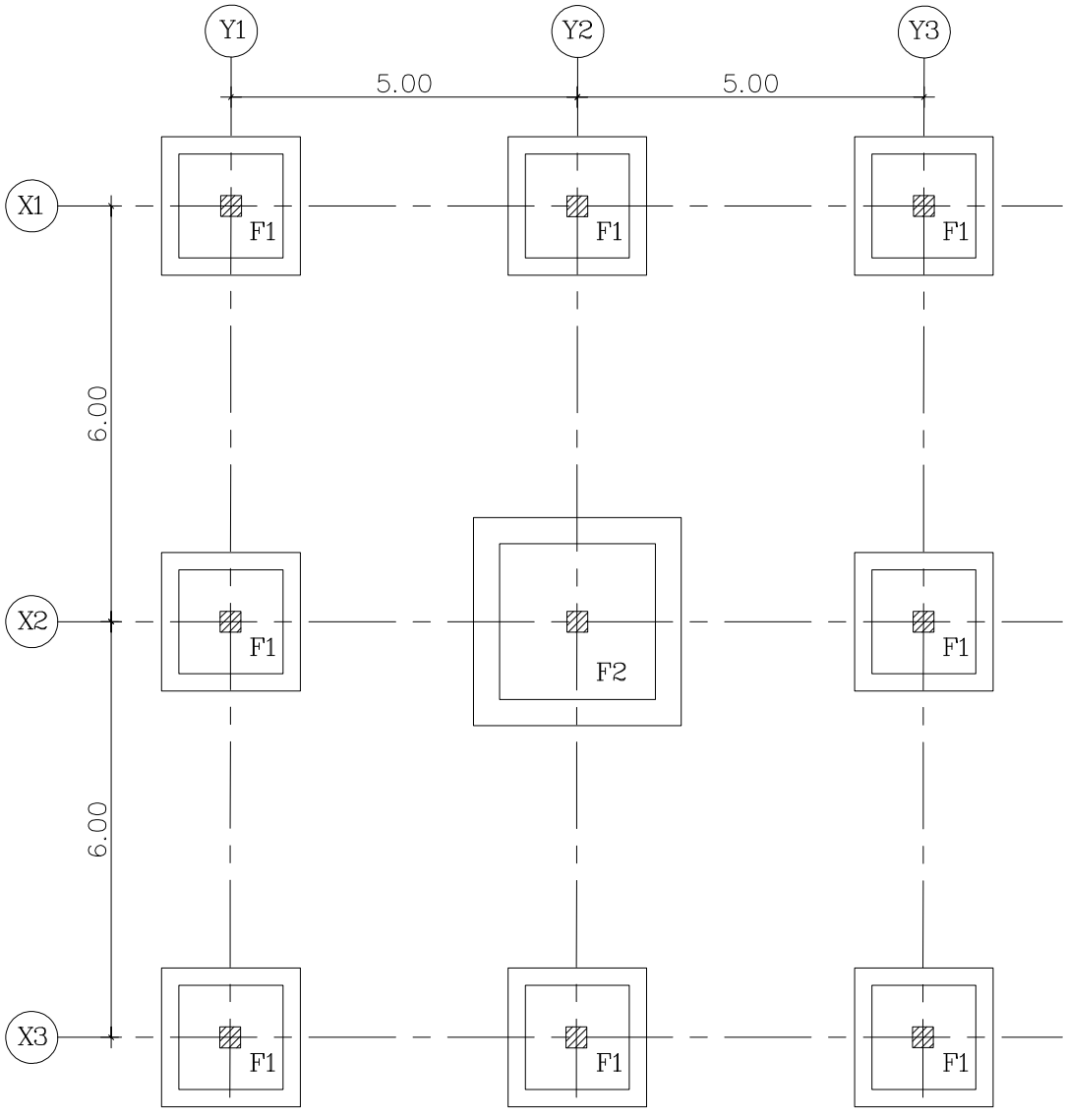
For the following figure:

1- Draw the foundation layout using the AutoCAD program.

2- Calculate the necessary reinforcement quantities for casting foundations.

3- Draw a plan for the typical footing indicating bar marks and lengths for all bars.

4- Draw the bar bending schedule (BBS) using the AutoCAD program.



Foundations

SC. 1/100

FOUNDATIONS:

1– MINIMUM BEARING CAPACITY AT FOUNDATION LEVEL SHOULD NOT BE LESS THAN 1.00 Kg/cm .

2– ANTI–SULPHATE CEMENT IS TO BE USED FOR UNDER–GROUND PART OF THE STRUCTURE .

3– BURIED PARTS OF THE STRUCTURE SHOULD BE WATERTIGHT . CONTRACTOR SHOULD TAKE THE NECESSARY MEASURES TO PREVENT WATER SEEPAGE AFTER CONSTRUCTION COMPLETION .

Rebars Weight	
Diameter	Unit Wt (kg/m)
ϕ 8	0.394
ϕ 10	0.617
ϕ 12	0.888
ϕ 14	1.208

Diameter	Unit Wt (kg/m)
ϕ 16	1.578
ϕ 18	1.998
ϕ 20	2.466
ϕ 22	2.984
ϕ 25	3.853

* Concrete grade

For Plain Concrete Fcu=20 N/mm^2

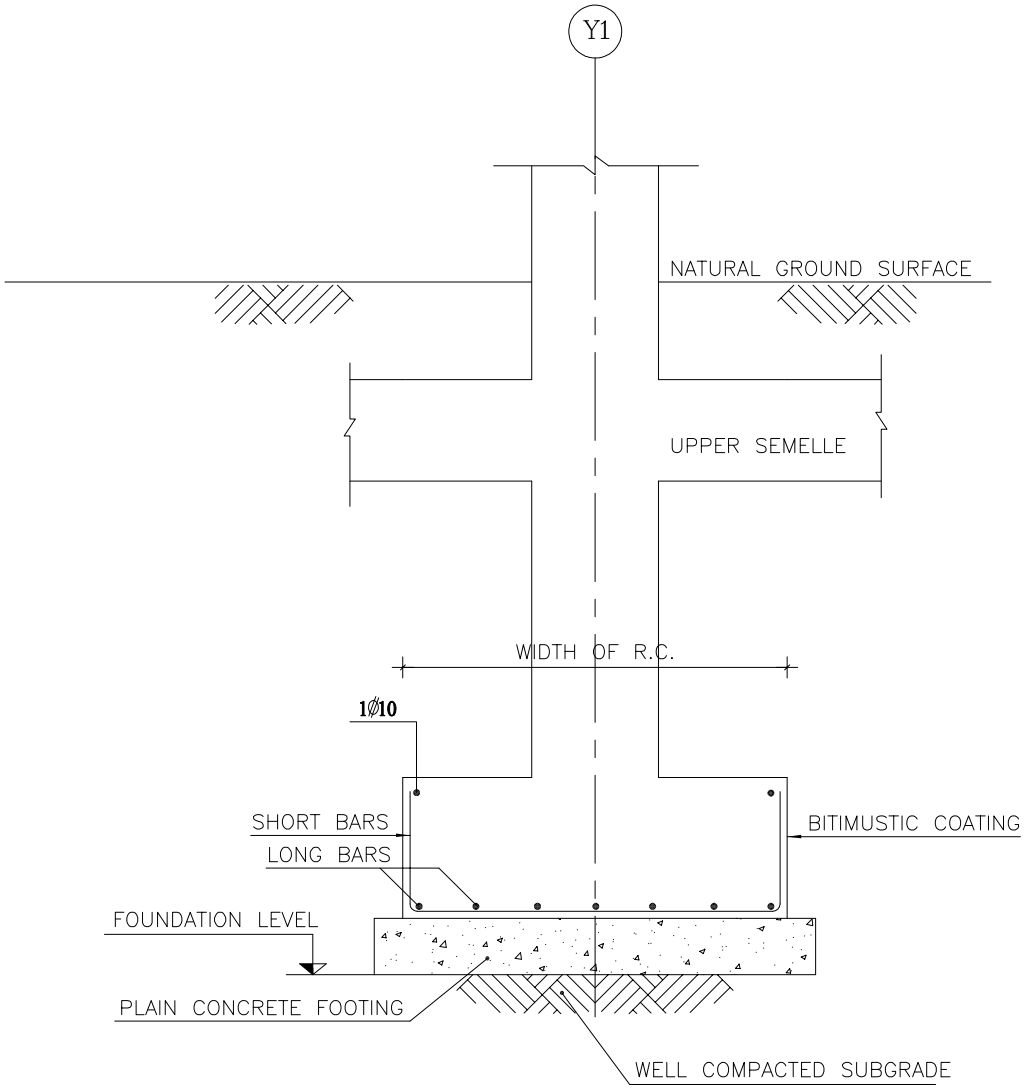
For Reinforcing Concrete Fcu=30 N/mm^2

LOCATION	CLEAR COVER
FOUNDATION	75 mm
BEAMS AND COLUMNS	30 mm
SLABS	25 mm

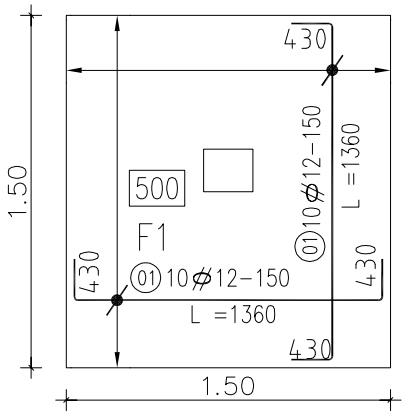
DR/ Ahmed Nabil

SCHEDULE FOR FOOTINGS

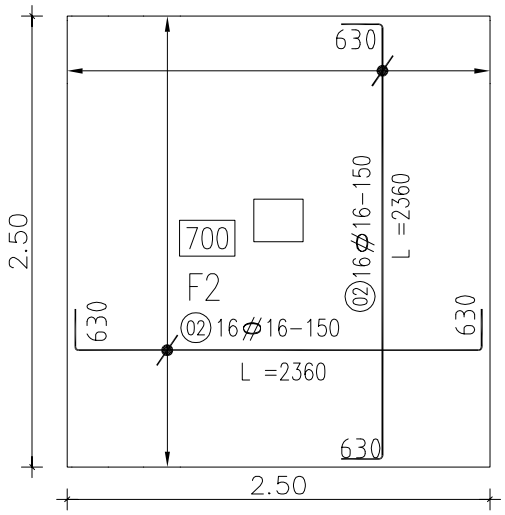
TYPE	DIMENSIONS OF P.C. (M)			DIMENSIONS OF R.C. (M)			REINFORCEMENT			
	LENGTH	WIDTH	THICK.	LENGTH	WIDTH	THICK.	SHORT DIRECTION		LONG DIRECTION	
							BOTT. RFT.	TOP RFT.	BOTT. RFT.	TOP RFT.
F1	2.00	2.00	0.25	1.50	1.50	0.50	⌀ 12 d.150	—	⌀12 d.150	—
F2	3.00	3.00	0.25	2.50	2.50	0.70	⌀ 16 d.150	—	⌀16 d.150	—



TYPICAL DETAIL OF FOOTINGS



F1



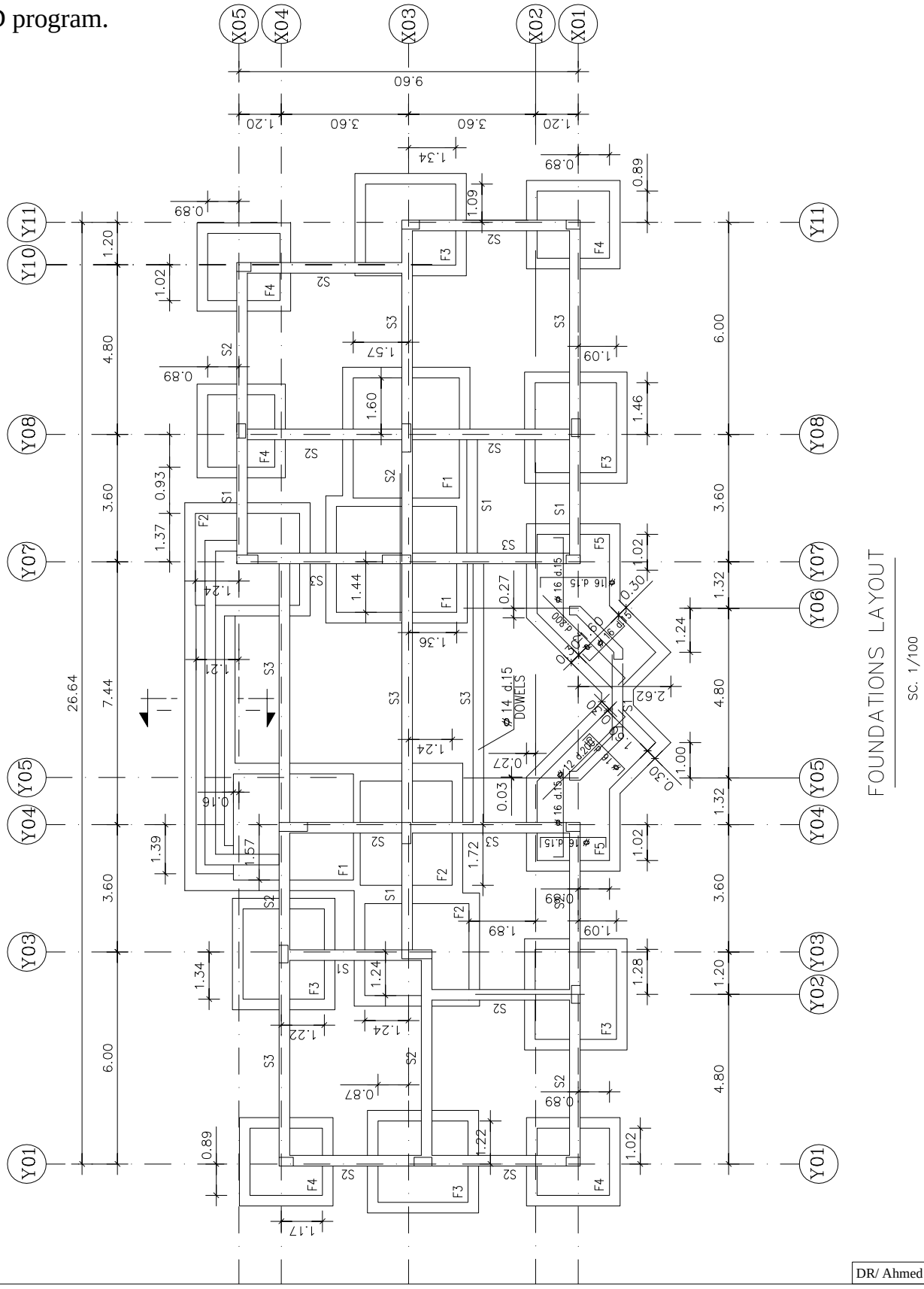
F2

Bar Bending Schedule

Bar mark	Type and size	No. of memb.	No. of bars in each memb.	Total No.	Length	memb.	Shape & Dimension	Total Weight (Kg)
	mm				mm			(Kg)
01	⌀ 12	8	20	160	2220	F1	A=430 A, B=1360, B	315.50
02	⌀ 16	1	32	32	3620	F2	A=630 A, B=2360, B	164.70
03	⌀ 10	8	4	32	1360	F1	A=1360, A	26.90
04	⌀ 10	1	4	4	2360	F2	A=2360, A	5.90

Total Weight			
Diameter	**Weight (kg)**	**Diameter**	**Weight (kg)**
⌀ 10	.....	⌀ 16	.....
⌀ 12	.....		

The following figure presents the footings layout of an Accommodation . The building consists of 3 Floors, it is required to calculate the amount of reinforcement for casting the footings only.
Using the reinforcement details in the attached footings schedule. And draw the footings layout using the AutoCAD program.



SCHEDULE FOR FOOTINGS

TYPE	DIMENSIONS OF P.C. (M)			DIMENSIONS OF R.C. (M)			REINFORCEMENT				REMARKS
	LENGTH	WIDTH	THICK.	LENGTH	WIDTH	THICK.	SHORT DIRECTION		LONG DIRECTION		
							BOTT. RFT.	TOP RFT.	BOTT. RFT.	TOP RFT.	
F1	4.00	3.60	0.30	3.60	3.00	0.50	ϕ 16 d.150	—	ϕ 16 d.150	—	
F2	3.55	3.20	0.30	2.95	2.6	0.50	ϕ 16 d.150	—	ϕ 16 d.150	—	
F3	3.15	2.90	0.30	2.55	2.30	0.50	ϕ 16 d.150	—	ϕ 16 d.150	—	
F4	2.65	2.50	0.30	2.05	1.90	0.50	ϕ 18 d.150	—	ϕ 18 d.150	—	
F5	SEE PLAN										

SCHEDULE FOR SEMELLES

TYPE	DIM.(m)		RFT.		STIRRUPS	REMARKS
	WIDTH	DEPTH	TOP RFT.	BOT. RFT.		
S1	0.30	0.60	4ϕ16	4ϕ16	ϕ 8 d. 15	
S2	0.30	0.60	4ϕ18	4ϕ18	ϕ 10 d. 20	
S3	0.30	0.60	4ϕ22	4ϕ22	//○ 10 d. 20	