

**GURUNANAK ENGINEERING COLLEGE (GNEC)**



**DEPARTMENT OF CIVIL ENGINEERING**

**PROJECT REPORT**

**ESTIMATION AND COSTING OF RESIDENTIAL BUILDING  
(G+5)**

**BY**

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## 1. INTRODUCTION:

An accurate estimate of the cost involved is of great importance, especially to a contractor, as this forms a basis for his bid proposals, procurement plans and control of the cost being incurred in a job. Estimating in construction projects is a very complex process due to inherent interactions and interdependence involved and the absence of standard norms. Given the highly competitive environment at present, it is important that special attention is paid to cost estimation so that a contractor can win a job and still maintain a reasonable margin of profit.

It may be noted that the client (or owner) organization and contracting agencies draw up their own estimates from the information and data available to them. Also, for different purposes, the required precision in the estimates is different-for example, for budgetary purposes an owner may be happy with even 10 percent variation, but such an error for a contractor bidding for the job could be simply disastrous and unacceptable. There is, thus, a clear difference in perception towards estimation in the client and contracting organizations. An effort has been made to bring the various issues in client's estimation of project cost .

It is obvious that the accuracy of an estimate can be improved once the nature of the project is clearly defined, and all quantities, quality of material and workmanship.

Logistics etc, are well understood,. Since this is often not the case, rule of thumb and approximate methods have also evolved, and reference has been made to some of the more commonly used approaches at appropriate places. For building works, for example, where as approximate estimates are at times drawn up on the basis of plinth area, floor area, enclosed volume, length of the wall, etc...,detailed estimates would require specifications, program of works, available drawings, materials, manpower and equipment, productivity, and the indirect costs .

## **ESTIMATE**

As a project is proposed and then developed, the estimate preparation and information will change based on the needs of the Owner/Client/Designer. These changes will require estimates to be prepared at different levels during the design process with increasing degrees of information provided. It should also be noted that within each level of estimate preparation, not all portions of the design would be at the same level of completeness. For example, the architectural design may be at 80% complete while the mechanical design is only 50% complete. This is common through the design process, but should always be noted in the estimate narrative.

In addition to construction costs, estimates for process or manufacturing areas require information related to the involved processes such as product line capacity, process layout, handling requirements, utility requirements, materials and storage required, service requirements, flow diagrams, and raw materials access.

The following descriptions constitute the different levels of an estimate. Estimates within each of these levels may be prepared multiple times during the design process as more information

Becomes available or changes are made to the scope. As the level of the estimate increases it will become more detailed as more information is provided; "unknowns" are eliminated; fewer assumptions are made; and the pricing of the quantities become more detailed. Contingencies for the aforementioned will be reduced as more design documentation is produced

## **COST ESTIMATES**

Construction cost constitutes only a fraction, though a substantial fraction, of the total project cost. However, it is the part of the cost under the control of the construction project manager. The required levels of accuracy of construction cost estimates vary at different stages of project development, ranging from ball park figures in the early stage to fairly reliable figures for budget control prior to construction. Since design decisions made at the beginning stage of a project life cycle are more tentative than those made at a

later stage, the cost estimates made at the earlier stage are expected to be less accurate. Generally, the accuracy of a cost estimate will reflect the information available at the time of estimation.

Construction cost estimates may be viewed from different perspectives because of different institutional requirements. In spite of the many types of cost estimates used at different stages of a project, cost estimates can best be classified into three major categories according to their functions. A construction cost estimate serves one of the three basic functions: design, bid and control. For establishing the financing of a project, either a design estimate or a bid estimate is used.

#### NEED FOR ESTIMATION AND COSTING

1. Estimate gives an idea of the cost of the work and hence its feasibility can be determined
  - i.e whether the project could be taken up with in the funds available or not.
2. Estimate gives an idea of time required for the completion of the work.
3. Estimate is required to invite the tenders and Quotations and to arrange contract.
4. Estimate is also required to control the expenditure during the execution of work.
5. Estimate decides whether the proposed plan matches the funds available or not.

#### Types of Construction Estimates

Numerous estimating techniques prevail in the market and these can be categorized in the following ways:-

1. Conceptual estimates
2. Detailed estimates

##### ➤ Conceptual estimates

Basic parametric sizes are used for the type of building to reach an order of magnitude estimate. Quantities do not play a large role. Historical Ratios are used to establish a cost per unit. Basic scopes for trades are established.

➤ Detailed Estimate

A detailed estimate is the most accurate form of estimate. This type of estimate is set up to find out the quantities and costs of everything for a project. These types of estimates help contractor to complete a construction successfully. A detailed estimate is arranged in the following two ways :-

(a). Unit quantity method

(b). Total quantity method.

➤ (a) . Unit Quantity Method

In this method, the work is segregated into as many operations or items as per requirements. A unit of measurement is settled on. The total quantity of work under each item is extracted in the suitable unit of measurement. Every item is evaluated and exercised with the total cost per unit quantity. After that the cost per unit quantity is multiplied by the number of units to determine the total cost for the item. As for instance, at the time of preparing the cost of a building work, the quantity of brickwork in the building is gauged by cubic meters. The total cost along with cost of materials. Labor, plant, overheads and profit per cubic meter of brickwork is generated and after that the predictable cost of brickwork is calculated by multiplying this unit cost by the number of cubic meters of brickwork in the building.

The benefit of this method is that the unit costs on different jobs are instantly comparable and that the total estimate can be rectified effortlessly for variations in quantities.

➤ Total Quantity Method

An item of work is separated with the following five subdivisions In the total quantity method:

(I) Materials

(II) Labor

(III) Plant

(IV) Overheads (V) Profit.

The total quantities of each kind or class of material or labor are established and multiplied by their individual unit cost. The cost of plant, overhead expenses and profit are decided in the same way. The costs of all the five sub-heads are added to provide the estimated cost of the item of work.

There is also the detail of material waste factors, delivery/shipping, handling, storage, and taxes. Along with labor crew size and makeup, productivity, safety, wage rates, tools and equipment. Equipment also has type/size selection, fuel, delivery, mobilization/demobilization, operator, maintenance, replacement value, rent/buy, and licensing.

Uniform at, Master Format, WBS (work breakdown structure) are all integral parts of providing any of these types of estimates

## PROCEDURE OF ESTIMATING OR METHOD OF ESTIMATING.

❖ Estimating involves the following operations

1. Preparing detailed Estimate.
2. Calculating the rate of each unit of work
3. Preparing abstract of estimate

❖ DATA REQUIRED TO PREPARE AN ESTIMATE

1. Drawings i.e. plans, elevations, sections etc.
2. Specifications.
3. Rates.

### 1. DRAWINGS

If the drawings are not clear and without complete dimensions the preparation of estimation become very difficult. So, It is very essential before preparing an estimate.

### 2. SPECIFICATIONS

a) General Specifications: This gives the nature, quality, class and work and materials in general terms to be used in various parts of work. It helps to form a general idea of building.

b) Detailed Specifications: These give the detailed description of the various items of work laying down the Quantities and qualities of materials, their proportions, the method of preparation workmanship and execution of work.

### 3. RATES:

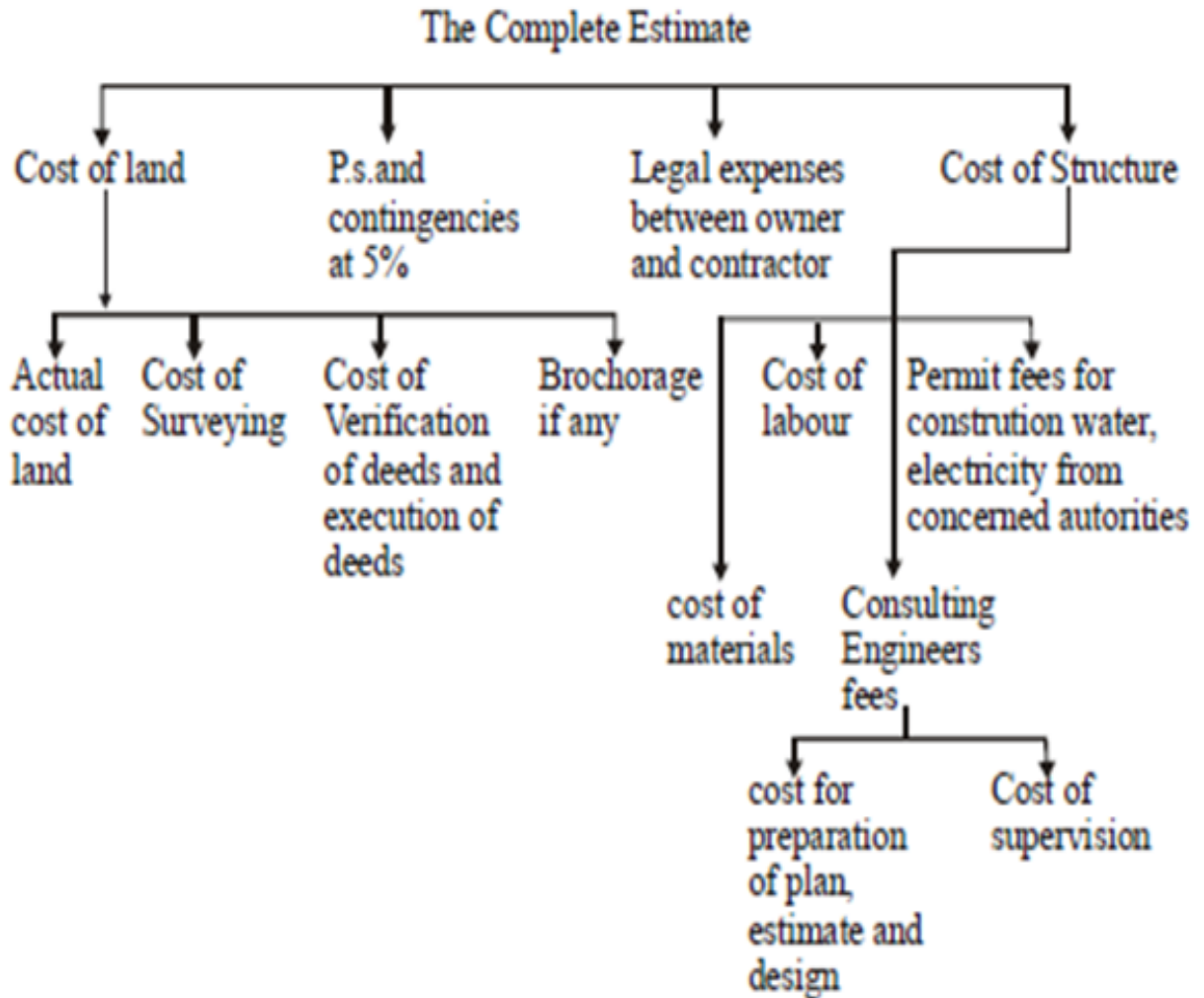
For preparing the estimate the unit rates of each item of work are required.

1. for arriving at the unit rates of each item.
2. The rates of various materials to be used in the construction.
3. The cost of transport materials.
4. The wages of labour, skilled or unskilled of masons, carpenters, Mazdoor, etc

❖ FLOW CHART COMPLETE ESTIMATE:

Most of people think that the estimate of a structure includes cost of land,

Cost of materials and labour, but many other direct and indirect costs included and is shown below.





## **LUMPSUM:**

While preparing an estimate, it is not possible to work out in detail in case of petty items. Items other than civil engineering such items are called lump sum items or simply L.S.Items.

The following are some of L.S. Items in the estimate.

1. Water supply and sanitary arrangements.
2. Electrical installations like meter, motor, etc.,
3. Architectural features.
4. Contingencies and unforeseen items.

In general, certain percentage on the cost of estimation is allotted for the above L.S.Items

Even if subestimates prepared or at the end of execution of work, the actual cost should not exceed the L.S.amounts provided in the main estimate.

## **WORK CHARGED ESTABLISHMENT:**

During the construction of a project considerable number of skilled supervisors, Work assistance, watch men etc., are employed on temporary basis.

The salaries of these persons are drawn from the L.S. amount allotted towards the work charged establishment. that is, establishment which is charged directly to work. an L.S.amount of 1½ to 2% of the estimated cost is provided towards the work charged establishment.

## **METHODS OF TAKING OUT QUANTITIES:**

The quantities like earth work, foundation concrete, brickwork in plinth and Superstructure etc., can be workout by any of following two methods:

- a) Long wall - short wall method
- b) Centre line method.
- c) Partly centre line and short wall method.

### **a) Long wall-short wall method:**

In this method, the wall along the length of room is considered to be long wall while the wall perpendicular to long wall is said to be short wall. To get the length of long wall or short wall, calculate first the centre line lengths of individual walls. Then the length of long wall, (out to out) may be calculated after adding half breadth at each end to its centre line length. Thus the length of short wall measured into in and may be found by deducting half breadth from its centre line length at each end. The length of long wall usually decreases from earth work to brick work in super structure while the short wall increases. These lengths are multiplied by breadth and depth to get quantities.

### **b) Centre line method:**

This method is suitable for walls of similar cross sections. Here the total centre line length is multiplied by breadth and depth of respective item to get the total quantity at a time. When cross walls or partitions or verandah walls join with main wall, the centre line length gets reduced by half of breadth for each junction. such junction or joints are studied carefully while calculating total centre line length. The estimates prepared by this method are most accurate and quick.

### **c) Partly centre line and partly cross wall method:**

This method is adopted when external (i.e., all-round the building) wall is of one thickness and the internal walls having different thicknesses. In such cases, Centre line method is applied to external walls and long wall-short wall method is used to internal walls. This method suits for different thicknesses walls and different level of foundations. Because of this reason, all Engineering departments are Practicing this method.

## TYPES OF ESTIMATES

### DETAILED ESTIMATE:

The preparation of detailed estimate consists of working out quantities of various items of work and then determines the cost of each item. This is prepared in two stages.

#### *i) Details of measurements and calculation of quantities:*

The complete work is divided into various items of work such as earth Work concreting, brick work, R.C.C. Plastering etc., The details of measurements are taken from drawings and entered in respective columns of prescribed proforma. the quantities are calculated by multiplying the values that are in numbers column to Depth column as shown below:

S.NO.	Description of Item	No	Length (L) m	Breadth (B) m	Depth/ Height (D/H)m	Quantity	Explanatory Notes

**ii) ABSTRACT OF ESTIMATED COST:**

The cost of each item of work is worked out from the quantities that already computed in the details measurement form at workable rate. But the total cost is worked out in the prescribed form is known as abstract of estimated form. 4% of estimated Cost is allowed for Petty Supervision, contingencies and Unforeseen items.

S.NO.	Description of Item	Quantity	Unit	Rate	Per (Unit)	Amount	TOTAL Amount

The detailed estimate should accompanied with

- i) Report
- ii) Specification
- iii) Drawings (plans, elevation, sections)
- iv) Design charts and calculations
- v) Standard schedule of rates.

➤ **Factors to be considered While Preparing Detailed Estimate:**

- i) **Quantity and transportation of materials:** For bigger project, the requirement of materials is more. Such bulk volume of materials will be purchased and transported definitely at cheaper rate.
- ii) **Location of site:** The site of work is selected, such that it should reduce damage or in transit during loading, unloading, stocking of materials.

iii) **Local labour charges:** The skill, suitability and wages of local labourers are considered while preparing the detailed estimate

### **Fixing of Rate per Unit of an Item:**

The rate per unit of an item includes the following:

1) **Quantity of materials & cost:** The requirement of materials is taken strictly in accordance with standard data book (S.S.R.). The cost of these includes first cost, freight, insurance and transportation charges.

ii) **Cost of labour:** The exact number of labourers required for unit of work and the multiplied by the wages/ day to get of labour for unit item work.

iii) **Cost of equipment (T&P):** Some works need special type of equipment, tools and plant. In such case, an amount of 1 to 2% of estimated cost is provided.

iv) **Overhead charges:** To meet expenses of office rent, depreciation of equipment salaries of staff postage, lighting an amount of 4% of estimate cost is allocated.

### **METHODS OF PREPARATION OF APPROXIMATE ESTIMATE:**

Preliminary or approximate estimate is required for studies of various aspects of work of project and for its administrative approval. It can decide, in case of commercial projects, whether the net income earned justifies the amount invested or not. The approximate estimate is prepared from the practical knowledge and cost of similar works. The estimate is accompanied by a report duly explaining necessity and utility of the project and with a site or layout plan. A percentage 5 to 10% is allowed for contingencies. The following are the methods used for preparation of approximate estimates.

a) Plinth area method

b) Cubical contents methods

c) Unit base method.

**a) Plinth area method:** The cost of construction is determined by multiplying plinth area with plinth area rate. The area is obtained by multiplying length and breadth (outer dimensions of building). In fixing the plinth area rate, careful observation and necessary enquiries are made in respect of quality and quantity aspect of materials and labour, type of foundation, height of building, roof, wood work, fixtures, number of storeys etc., As

per IS 3861-1966, the following areas include while calculating the plinth area of building.

➤ Types of Estimates

a) Area of walls at floor level.

b) Internal shafts of sanitary installations not exceeding 2.0m<sup>2</sup>, lifts, air-conditioning ducts etc.,

c) Area of barsati at terrace level: Barsati means any covered space open on one side constructed on one side constructed on terraced roof which is used as shelter during rainy Season.

d) Porches of non cantilever type.

➤ Areas which are not to include

a) Area of lofts.

b) Unenclosed balconies.

c) Architectural bands, cornices etc.,

d) Domes, towers projecting above terrace level.

e) Box louvers and vertical sun breakers.

**b) Cubical Contents Method:** This method is generally used for multistoried buildings. It is more accurate than the other two methods viz., plinth area method and unit base method. The cost of a structure is calculated approximately as the total cubical contents (Volume of buildings) multiplied by Local Cubic Rate. The volume of building is obtained by Length x breadth x depth or height. The length and breadth are measured out to out of walls excluding the plinth offset. The cost of string course, cornice, corbelling etc., is neglected. The cost of building = volume of buildings x rate/ unit volume.

**c) Unit Base Method:** According to this method the cost of structure is determined by multiplying the total number of units with unit rate of each item. In case schools and colleges, the unit considered to be as 'one student' and in case of hospital, the unit is 'one bed'. The unit rate is calculated by dividing the actual expenditure incurred or cost of similar building in the nearby locality by the number of units.

## DETAILED ESTIMATION

s.no	Item	no	Length (L)	breadth (B)	Height/depth (H)	quantity	EXPLANATORY NOTES
1.	Earth work excavation for total plinth area	1	1089.74		0.5	544.87m <sup>3</sup>	
2	a). Earth work excavation For footings size(2.5Mx2.5M)	1x 28	2.5	2.5	2.5	437.5m <sup>3</sup>	
	b). Earth work excavation For footings size (3Mx3M)	1x 8	3	3	3	216m <sup>3</sup>	
3	Earth work excavation For compound walls	1x 1	128.89	0.3	0.5	19.34m <sup>3</sup>	
4	Total earthwork excavation quantity						<b>1217.68 m<sup>3</sup></b>
5.	Earth work in filling Footings	1x 28	2.5	2.5	2.5	437.5m <sup>3</sup>	
	a). Earth work filling For footings size(2.5Mx2.5M)						
	b). Earth work filling For footings size (3Mx3M)	1x 8	3	3	3	216 m <sup>3</sup>	<b>653.5 M<sup>3</sup></b>
6.	P.C.C bed(1:3:6) For (2.5mx.25m)	1x 28	2.5	2.5	0.1	17.5 m <sup>3</sup>	
	P.C.C bed(1:3:6) For (3mx3m)	1x 8	3	3	0.1	7.2 m <sup>3</sup>	



S.no	Particulars of items and details of works	No	Length m	Breadth m	Height/ depth m	Quantity m <sup>3</sup>	EXPLANATORY NOTES
	Total P.C.C net quantity						<b>24.7 m<sup>3</sup></b>
7	<b>R.C.C(1:2:4) FOOTINGS</b> Footing size (2.5mx2.5m)						
	a) 1 <sup>ST</sup> Footing	1x 28	2.35	2.35	0.6	92.78m <sup>3</sup>	
	b). 2 <sup>nd</sup> Footing	1x 28	0.914	0.914	0.6	14.03m <sup>3</sup>	
	c).3 <sup>rd</sup> footing	1x 28	0.3	0.6	1.2	6.05m <sup>3</sup>	
8.	<b>Footing size(3mx3m)</b>						
	a).1 <sup>st</sup> footing	1x 8	2.85	2.85	0.71	46.14m <sup>3</sup>	
	b).2 <sup>nd</sup> footing	1x 8	0.91	0.91	0.6	3.974m <sup>3</sup>	
	c).3 <sup>rd</sup> footing	1x 8	0.3	0.7	1.2	2m <sup>3</sup>	
	Quantity of R.C.C footings						<b>164.97 m<sup>3</sup></b>
9	Stone pitching for compound wall	1x1	128.89	0.3	0.3	11.6m <sup>3</sup>	
10	R.C.C Plinth beam (1:2:4). for Compound wall	1 x1	128.89	0.3	0.3	11.6 m <sup>3</sup>	
11	R.C.C columns (1:2:4). for compound wall	1x35	0.3	0.3	2	6.3m <sup>3</sup>	

## Ground floor

### Plinth beams(1:2:4) :

s. no	Item	no	length	breadth	height	quantity	total
1.	Plinth beam [x-direction]	1x 5	29	0.3	0.3	13.05m <sup>3</sup>	
2.	Plinth beam [y-direction]	1x 8	22	0.3	0.3	15.84m <sup>3</sup>	
3.	Total R.C.C plinth beams quantity						28.89m <sup>3</sup>

## Ground floor flooring

s. no	Item	no	length	breadth	height	quantity	total
1.	fine aggregate & coarse aggregate filing in 100mm thick	1x1	32.65	32.65	31.14	101.67 m <sup>3</sup>	
2.	granite marble	1x1	32.65	32.65	31.14	1016.721m <sup>2</sup>	

**R.C.C COLUMNS (1:2:4)**

<b>COLUMNS</b>	<b>SIZE</b>
C <sub>1</sub> , C <sub>2</sub> , C <sub>3</sub> , C <sub>4</sub> , C <sub>5</sub>	0.23 x 0.6 m
C <sub>6</sub> , C <sub>7</sub> , C <sub>8</sub>	0.23 x 0.76 m
C <sub>9</sub> , C <sub>10</sub> , C <sub>11</sub> , C <sub>12</sub> , C <sub>13</sub> , C <sub>14</sub> , C <sub>15</sub>	0.3 x 0.76 m

**Ground Floor (Columns)**

s.no	item	No.	length	breadth	height	quantity	Total quantity
1	C1	1x 7	0.6	0.23	3	2.89 m <sup>3</sup>	
2	C2	1x 2	0.6	0.23	3	0.83 m <sup>3</sup>	
3	C3	1x 4	0.6	0.23	3	1.66 m <sup>3</sup>	
4	C4	1x 1	0.6	0.23	3	0.42 m <sup>3</sup>	
5	C5	1x 3	0.6	0.23	3	1.25 m <sup>3</sup>	
6	C6	1x 1	0.6	0.23	3	0.414 m <sup>3</sup>	
7	C7	1x 1	0.6	0.23	3	0.414 m <sup>3</sup>	
8	C8	1x 2	0.6	0.23	3	0.83 m <sup>3</sup>	
9	C <sub>9</sub>	1x 2	0.6	0.3	3	1.1 m <sup>3</sup>	
10	C <sub>10</sub>	1x 2	0.6	0.3	3	1.1 m <sup>3</sup>	
11	C <sub>11</sub>	1x 2	0.6	0.3	3	1.1 m <sup>3</sup>	
12	C <sub>12</sub>	1x 3	0.6	0.3	3	1.62 m <sup>3</sup>	
13	C <sub>13</sub>	1x 3	0.6	0.3	3	1.62 m <sup>3</sup>	
14	C <sub>14</sub>	1x 2	0.6	0.3	3	1.1 m <sup>3</sup>	
15	C <sub>15</sub>	1x 1	0.6	0.3	3	0.54 m <sup>3</sup>	
	Total quantity						16.88 m <sup>3</sup>

**R.C.C Beams (1:2:4):**

S.no	item	No.	length	breadth	height	quantity	Total
1	Beam B8b,B14b,B15b, B16b	1x 9	11.83	0.23	0.6	14.7 m <sup>3</sup>	
2	B6a,b6c,b6e, b7a,b7b,b7c, b7e,b7f	1x 2	26.92	0.23	0.6	7.43 m <sup>3</sup>	
3	Beam at lift, staircase B5d,b5c,b5e	11x	7	0.23	0.6	0.97 m <sup>3</sup>	
4	Beams at lift b4	1x 4	2	0.23	0.45	0.83 m <sup>3</sup>	
5	Beam at entrance Of lift b5c,b5e,(9''x23'') L=2m	1x 2	2	0.23	0.6	0.55 m <sup>3</sup>	
6	All round the block-A	1x 2	41.84	0.23	0.6	11.56 m <sup>3</sup>	
7	Beam B3a	1x2	5.105	0.4	0.45	1.84 m <sup>3</sup>	

8	Beam B3b	1x2	3.83	0.23	0.6	1.06 m <sup>3</sup>	
9	Beam B10a,B11a	1x2	9.75	0.23	0.45	2.1 m <sup>3</sup>	
10	Beam B11b,B11a	1x2	9.75	0.23	0.6	2.7 m <sup>3</sup>	
	<b>Total R. c. c beams(1:2:4) quantity</b>						<b>43.76m<sup>3</sup></b>

**R. C. C Slab (1:2:4)**

s.no	item	No.	Length (L)	Breadth (B)	Height (H)	Quantity (Q)	
1.	R.C.C slab (1:2:4)	<b>1</b>	29.2	22.112	0.12	77.48m <sup>3</sup>	
2.	Deduction	1	7.01	10	0.12	8.41 m <sup>3</sup>	
3.	Net quantity					69.07 m <sup>3</sup>	

**First floor block A**

S.NO	ITEM	NO	LENGTH m	BREDTH m	HEIGHT/ DEPTH m	QUANTITY m <sup>3</sup>	EXPLANATORY NOTES
1	<b>Brick masonry Construction of superstructure with c:m 1:6 pro</b> all round the block-A	1.00	40.62	0.23	2.70	25.23m <sup>3</sup>	
2	C/W between living & bed room- 1,2 Living& M.B.R, kitchen	2.00	9.68	0.11	2.70	5.75 m <sup>3</sup>	
3.	C/W BETWEEN KITCHEN &BALCONY	1.00	3.55	0.11	2.70	1.05 m <sup>3</sup>	
4.	C/W between toilet-2 &living/dining	1.00	3.00	0.11	2.70	0.89 m <sup>3</sup>	
5.	short walls of toilet2(x-direction)	2.00	4.00	0.11	2.70	2.38 m <sup>3</sup>	
6.	C/W BETWEEN TOILET-2	1.00	2.41	0.11	2.70	0.72 m <sup>3</sup>	
7.	C/W of WIDE BALCONY& Living room	1.00	1.50	0.23	2.70	0.93 m <sup>3</sup>	
8.	both SIDE WALL BETWEEN TOILET-1(X- DIRECTION)	2.00	3.86	0.11	2.70	2.29 m <sup>3</sup>	

9	Total B.M in block A without deductions		39.24 m <sup>3</sup>
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s.no	item	no	length	breadth	depth	quantity	EXPLANATORY NOTES
10)	<b>DEDUCTIONS</b>						
a)	M.D	1	1.1	0.30	2.00	0.66m <sup>3</sup>	
b)	D	3	0.90	0.11	1.80	0.53 m <sup>3</sup>	
c)	D1	5	0.75	0.11	1.80	0.74 m <sup>3</sup>	
d)	W	3	1.20	0.23	1.20	0.99 m <sup>3</sup>	
e)	W1	1	0.90	0.23	1.20	0.25 m <sup>3</sup>	
f)	W2	1	0.70	0.23	0.90	0.14 m <sup>3</sup>	
g)	W3	1	0.80	0.23	0.90	0.17 m <sup>3</sup>	
h)	V	2	0.90	0.23	0.50	0.21 m <sup>3</sup>	
i)	V1	1	0.80	0.23	0.50	0.09 m <sup>3</sup>	
11)	<b>B.M DEDUCTION AT OPENINGS</b>						
A	Deduct B.M at outer side of balcony at kitchen	1	3.58	0.23	2.90	2.39 m <sup>3</sup>	
B	Deduct B.M at outer side of wide balcony	1	3.35	0.23	2.90	2.24m <sup>3</sup>	
C	left side of living dining	1	2.86	0.11	3.00	0.94 m <sup>3</sup>	
D	Right side of living/ dining	1	1.79	0.11	3.00	0.59 m <sup>3</sup>	



<b>s.no</b>	<b>item</b>	no	length	breadth	depth	quantity	EXPLANATORY NOTES
E	deduct brick work entrance to kitchen	1	2.02	0.11	3.00	0.67 m <sup>3</sup>	
	Total deductions						10.61 m <sup>3</sup>

**Total net quantity of B.M in block A =39.24-10.61=28.63m<sup>3</sup>**

**R.C.C COLUMNS (1:2:4)**

<b>COLUMNS</b>	<b>SIZE</b>
C <sub>1</sub> , C <sub>5</sub>	0.23 x 0.6 m
C <sub>7</sub> , C <sub>8</sub>	0.23 x 0.76 m
C <sub>9</sub> , C <sub>10</sub> , C <sub>11</sub> , , C <sub>13</sub> ,	0.3 x 0.76 m

**FIRST Floor BLOCK – A (Columns)**

s.no	item	No.	length	breadth	height	quantity	total
1	C1	1x 2	0.6	0.23	3	0.828 m <sup>3</sup>	
2	C5	1x 2	0.6	0.23	3	0.276 m <sup>3</sup>	
3	C7	1x 1	0.76	0.23	3	0.524m <sup>3</sup>	
4	C8	1x 1	0.76	0.23	3	0.524 m <sup>3</sup>	
5	C <sub>9</sub>	1x 1	0.76	0.3	3	0.684 m <sup>3</sup>	
6	C <sub>10</sub>	1x 1	0.76	0.3	3	0.684m <sup>3</sup>	
7	C <sub>11</sub>	1x 1	0.76	0.3	3	0.684m <sup>3</sup>	
8	C <sub>13</sub>	2x 1	0.76	0.3	3	1.368 m <sup>3</sup>	
	<b>Total quantity</b>						<b>5.572m<sup>3</sup></b>

**R.C.C Beams (1:2:4):**

S.no	item	No.	length	breadth	height	quantity	Total
1	All round the block-A	1x 1	41.84	0.23	0.6	5.774 m <sup>3</sup>	
2	Beam B3a	1x1	5.105	0.4	0.45	0.92 m <sup>3</sup>	
3	Beam B3b	1x1	3.83	0.23	0.6	0.53m <sup>3</sup>	
4	Beam B10a,B11a	1x1	9.75	0.23	0.45	1.01 m <sup>3</sup>	
5	Beam B11b,B11a	1x1	9.75	0.23	0.6	1.35 m <sup>3</sup>	
6	<b>Total R. c. c beams(1:2:4) quantity</b>					9.584 m <sup>3</sup>	

**R. C. C Slab (1:2:4)**

S.no	Item	No.	Length (L)	Breadth (B)	Height (H)	Quantity (Q)	
1.	R.C.C slab (1:2:4) Block – A	1	10.95	9.98	0.12	13.114m <sup>3</sup>	

**Plastering with c.m 1:6**

	All round the building	1	41.83	-	3	125.49 m <sup>2</sup>	
	bed room- 1	1	12.9	-	3	38.7 m <sup>2</sup>	
	bed room- 2	1	13.17	-	3	39.51 m <sup>2</sup>	
	toilets	2	7.16	-	3	42.96 m <sup>2</sup>	
	toilet right side wall	2	3.07	-	3	18.42 m <sup>2</sup>	
	M bed room	1	15.9	-	3	47.7 m <sup>2</sup>	
	toilet(M bed room)	1	8.84	-	3	26.52 m <sup>2</sup>	
	short wall at bed room-	1	3.47	-	3	10.41 m <sup>2</sup>	
	2	1	4.4	-	3	13.2 m <sup>2</sup>	
	short wall(M bed room)	2	0.91	-	3	5.46 m <sup>2</sup>	
	short wall 2	1	12.34	-	3	37.02 m <sup>2</sup>	
	In kitchen	1	6.09	-	3	18.27 m <sup>2</sup>	
	wide balcony-1	1	3.46	-	3	10.38 m <sup>2</sup>	
	short wall of balcony	1	2.06	-	3	6.18 m <sup>2</sup>	
	short wall 3	1	9.6	-	3	28.8 m <sup>2</sup>	
	wide balcony-2	1	1.7	-	3	5.1 m <sup>2</sup>	
	short wall 1						
	total quantity						452.622m <sup>2</sup>

S.no	Item	No.	Length m	Breadth m	Height m	Quantity m <sup>2</sup>		
	<b>Deductions</b>							
	MD	1	1.1	-	2	2.2 m <sup>2</sup>		
	D	3	0.9	-	1.8	4.86 m <sup>2</sup>		
	D1	5	0.75	-	1.8	6.75 m <sup>2</sup>		
	W	3	1.2	-	1.2	4.32 m <sup>2</sup>		
	W1	1	0.9	-	1.2	1.08 m <sup>2</sup>		
	W2	1	0.7	-	0.9	0.63 m <sup>2</sup>		
	W3	1	0.8	-	0.9	0.72 m <sup>2</sup>		
	V1	2	0.9	-	0.5	0.9 m <sup>2</sup>		
	V2	1	0.8	-	0.5	0.4 m <sup>2</sup>		
	Total deductions		$452.622 - 21.86 = 430.76 \text{ m}^2$					
	Plastering with cement mortar(1:6) net quantity		$430.76 \text{ m}^2$					

**TWO COATS WITH ALL HYDRAULIC LIME WHITE WASHING**

<b>s.n o</b>	<b>Item</b>	<b>no</b>	<b>length</b>	<b>breadth</b>	<b>Depth/ height</b>	<b>quantity</b>	<b>EXPLANATORY NOTES</b>
1.	All round the block -A	1	41.83	-	3	125.5m <sup>2</sup>	
2.	bed room-1	1	12.9	-	3	38.7m <sup>2</sup>	
3.	bed room-2	1	13.17	-	3	39.51 m <sup>2</sup>	
4.	toilets	2	7.16	-	3	42.96 m <sup>2</sup>	
5.	master bed room	1	15.92	-	3	47.76 m <sup>2</sup>	
6.	toilet -2	1	8.84	-	3	26.52 m <sup>2</sup>	
7.	kitchen	1	12.34	-	3	37.02 m <sup>2</sup>	
8.	wide balcony-	1	6.09	-	3	18.27 m <sup>2</sup>	
9.	Balcony at kitchen	1	9.6	-	3	28.8 m <sup>2</sup>	
10.	toilet-1 short wall	1	3.1	-	3	9.3 m <sup>2</sup>	
11.	short wall	1	3.47	-	3	10.41 m <sup>2</sup>	
12.	c/w between living & toilet	2	0.914	-	3	5.484 m <sup>2</sup>	
13	shortwall-3(master bed room)	1	4.36	-	3	13.08 m <sup>2</sup>	
14.	short wall 2	1	1.68	-	3	5.04 m <sup>2</sup>	
15.	wide balconay-1(entrance wall)	1	3.46	-	3	10.38 m <sup>2</sup>	
	Bed room -1 & living room c/w	1	2.057	-	3	6.171 m <sup>2</sup>	
	short wall-1 M.D wall (inside)	1	3.353	-	3	10.06 m <sup>2</sup>	
Total white washing for walls without deductions 349.367 m <sup>2</sup>							

s.no	Item	no	length (L)	Breadth (B)	Depth/Height (D)	Quantity (Q)	EXPLANATORY NOTES
	<b>Deductions</b>	1	1.1	-	2	2.2 m <sup>2</sup>	
	MD						
	D	3	0.9	-	1.8	4.86 m <sup>2</sup>	
	D1	5	0.75	-	1.8	6.75 m <sup>2</sup>	
	W	3	1.2	-	1.2	4.32 m <sup>2</sup>	
	W1	1	0.9	-	1.2	1.08 m <sup>2</sup>	
	W2	1	0.7	-	0.9	0.63 m <sup>2</sup>	
	W3	1	0.8	-	0.9	0.72 m <sup>2</sup>	
	V1	2	0.9	-	0.5	0.9 m <sup>2</sup>	
	V2	1	0.8	-	0.5	0.4 m <sup>2</sup>	
Total deduction quantity = 21.86 m <sup>2</sup>							

Total net quantity of white washing for walls

= Total white washing for walls without deductions- Total deduction quantity

Net quantity of white washing for walls = 349.367 m<sup>2</sup>-21.86 m<sup>2</sup> = 327.51 m<sup>2</sup>

**White washing for ceiling**

s.no	Item	no	length (L)	Breadth (B)	Depth/Height (D)	Quantity (Q)	EXPLANATORY NOTES
1.	bed room -1	1	3.24	-	3.2	10.368m <sup>2</sup>	
2.	bed room -2	1	3.24	-	3.35	10.854 m <sup>2</sup>	
3.	toilets 1	2	2.23	-	1.4	6.244 m <sup>2</sup>	
4.	living/dining	1	3.35	-	8.4	28.14 m <sup>2</sup>	
5.	M bed room	1	3.6	-	4.3	15.48 m <sup>2</sup>	
6	kitchen	1	2.7	-	3.5	9.45 m <sup>2</sup>	
7.	toilets-2	-	2.7		1.67	4.509 m <sup>2</sup>	
8.	wide balcony-1	1	1.37	-	3.35	4.594 m <sup>2</sup>	
9.	wide balcony-2	1	1.1	-	3.8	4.18 m <sup>2</sup>	
10.	living/dining left		0.92	-	2.9	2.668 m <sup>2</sup>	
11.	side						
	living/dining right side		0.92	-	1.7	1.564 m <sup>2</sup>	
12.	Total white washing for ceiling			-			223.447 m <sup>2</sup>

Net quantity of white washing for block A=white washing for walls +white washing for ceiling



Net quantity of white washing for block A=327.51+223.447=550.96m<sup>2</sup>

**Flooring in block A**

s.no	Item	No	Length (L)	Breadth (B)	Depth (D)	Quantity (Q)	Total quantity
1.	Bed room-1	1	3.24	3.2	-	10.37m <sup>2</sup>	
2.	Bed room-2	1	3.24	3.35	-	10.85 m <sup>2</sup>	
3.	M bed room	1	3.66	4.3	-	15.74 m <sup>2</sup>	
4.	Living/dining	1	3.35	8.4	-	28.14 m <sup>2</sup>	
5.	Wide balcony	1	1.37	3.35	-	4.6 m <sup>2</sup>	
6.	Kitchen	1	2.70	3.47	-	9.4 m <sup>2</sup>	
7.	Balcony at Kitchen Toilets-2	1	0.96	3.5	-	3.36 m <sup>2</sup>	
8.	Toilet-1	1	2.21	1.37	-	3.1 m <sup>2</sup>	
9.	Toilet-1	1	2.75	1.68	-	4.6 m <sup>2</sup>	
	Quantity of floor area in block A						90.4 m <sup>2</sup>

**Doors , windows and ventilators**

<b>s.no</b>	<b>item</b>	<b>no</b>	<b>length</b>	<b>breadth</b>	<b>depth</b>	<b>quantity</b>	<b>EXPLANATORY NOTES</b>
10)							
a)	M.D	1	1.2	0.30	2.00	0.66m <sup>3</sup>	
b)	D	3	0.90	0.11	1.80	0.53 m <sup>3</sup>	
c)	D1	5	0.75	0.11	1.80	0.74 m <sup>3</sup>	
d)	W	3	1.20	0.23	1.20	0.99 m <sup>3</sup>	
e)	W1	1	0.90	0.23	1.20	0.25 m <sup>3</sup>	
f)	W2	1	0.70	0.23	0.90	0.14 m <sup>3</sup>	
g)	W3	1	0.80	0.23	0.90	0.17 m <sup>3</sup>	
h)	V	2	0.90	0.23	0.50	0.21 m <sup>3</sup>	
i)	V1	1	0.80	0.23	0.50	0.09 m <sup>3</sup>	

**First Floor Block B**

<b>s.no</b>	<b>item</b>	<b>no</b>	<b>Length (L)</b>	<b>Breath (B)</b>	<b>Depth (D)</b>	<b>Quantity (Q)</b>	<b>Explanator y notes</b>
	<b>Construction of superstructure with B.M in c:m 1:6 pro</b>						
1.	C/C All round the building	1	35.36	0.23	2.7	21.96m <sup>3</sup>	
2.	c/c of Long walls dining and toilets, Toilets and M.B.R, B..Room	2	8.08	0.11	2.7	4.8m <sup>3</sup>	
3.	c/w between both sides of kitchen & dining hall	2	5.12	0.11	2.7	3.1m <sup>3</sup>	
4.	Short walls of toilets	2	1.33	0.11	2.7	0.79m <sup>3</sup>	
5.	c/w between bedroom and M bed room	1	3.4	0.11	2.7	1 m <sup>3</sup>	

## Deductions

s.no	item	no	Length (L)	Breath (B)	Depth (D)	Quantity (Q)	Explanatory notes
6.	Brick work at balcony	1	5.2	0.23	1.9	2.27m <sup>3</sup>	
7.	B.M b/w drawing & dining (opening)	1	2.92	0.11	2.7	0.87m <sup>3</sup>	
8.	Opening Between dining & wash room	1	1.64	0.11	2.7	0.49m <sup>3</sup>	
	<b>Deduction of doors &amp; windows</b>						
	MD	1	1.1	0.23	2	0.5 m <sup>3</sup>	
	D	2	0.9	0.11	1.8	0.356m <sup>3</sup>	
	D	3	0.75	0.11	1.8	0.45 m <sup>3</sup>	
	D1	1	1.5	0.23	1.2	0.414m <sup>3</sup>	
	W	1	1.2	0.11	1.2	0.16 m <sup>3</sup>	
	W1	2	1.2	0.23	1.2	0.66 m <sup>3</sup>	
	W1	1	0.9	0.23	1.2	0.25 m <sup>3</sup>	
	W3	1	0.9	0.11	0.6	0.06 m <sup>3</sup>	
	W4	2	0.9	0.23	0.5	0.207m <sup>3</sup>	
	V					6.68 m <sup>3</sup>	
	Total deduction					24.97 m <sup>3</sup>	
	Total net quantity of B.M						

**R.C.C COLUMNS (1:2:4)**

<b>COLUMNS</b>	<b>SIZE</b>
C <sub>1</sub> , C <sub>2</sub> , C <sub>4</sub>	0.23 x 0.6 m
C <sub>9</sub> , C <sub>12</sub> , C <sub>15</sub>	0.3 x 0.76 m

**R.C.C COLUMNS FOR BLOCK- B**

s.no	item	no	Length (L)	Breath (B)	Depth (D)	Quantity (Q)	Explanatory notes
	C1	1x 1	0.6	0.23	3	0.414m <sup>3</sup>	
	C2	1x 1	0.6	0.23	3	0.414 m <sup>3</sup>	
	C4	1x 1	0.6	0.23	3	0.414m <sup>3</sup>	
	C9	1x 1	0.76	0.3	3	0.684m <sup>3</sup>	
	C <sub>12</sub>	1x 1	0.76	0.3	3	0.684 m <sup>3</sup>	
	C <sub>15</sub>	1x 1	0.76	0.3	3	0.684m <sup>3</sup>	
	<b>TOTAL NET QUANTITY OF R.C. .C COLUMNS</b>						3.3 m <sup>3</sup>

R.C.C BEAMS (1:2:4)

s.no	Item	No	Length (L)	Breath (B)	Depth (D)	Quantity (Q)	Explanatory notes
1.	B8a-B8b, B14a- B14b, B15a-B15b	1x 3	9.6	0.23	0.6	3.97m <sup>3</sup>	
2.	B6a- B6b, B7a- B7b	1x 2	10.93	0.23	0.6	3.03 m <sup>3</sup>	
3.	<b>TOTAL NET QUANTITY OF R.C.C BEAMS</b>					7.0 m <sup>3</sup>	

R. C. C Slab (1:2:4)

S.no	Item	No.	Length (L)	Breadth (B)	Height H)	Quantity (Q)	
1.	R.C.C slab (1:2:4) Block – B	<b>1</b>	8.31	9.83	0.12	9.8 m <sup>3</sup>	

**PLASTERING WITH CEMENT MORTAR 1:6 PRO FOR BOTH  
INSIDE AND OUT SIDE FOR BLOCK B**

<b>s.no</b>	<b>item</b>	<b>No.</b>	<b>length</b>	<b>Breadth</b>	<b>height</b>	<b>quality</b>	<b>Explanatory notes</b>
1	All round the block B out side	1	36.3	-	3	108.9m <sup>2</sup>	
2	Drawing	1	16.6	-	3	49m <sup>2</sup>	
3	Kitchen	1	11.2	-	3	33.6m <sup>2</sup>	
4	Dining	1	12.48	-	3	37.44m <sup>2</sup>	
5	Bed room	1	13.64	-	3	40.92m <sup>2</sup>	

<b>s.no</b>	<b>item</b>	<b>No.</b>	<b>length</b>	<b>Breadth</b>	<b>height</b>	<b>quality</b>	<b>Explanatory notes</b>
6	Main bedroom	1	15.08	-	3	45.24m <sup>2</sup>	
7	Toilet -1	1	6.7	-	3	20.1m <sup>2</sup>	
8	Toilet in M bedroom	1	7.4	-	3	22.2m <sup>2</sup>	
9	Balcony	1	7.85	-	3	23.55m <sup>2</sup>	
10	c/w between dining and bedrooms	1	4.39	-	3	26.34m <sup>2</sup>	
11.	Total quantity of plastering without deduction						408.09m <sup>2</sup>



s.no	item	No.	length	Breadth	height	quality	Explanatory notes
	Deductions at balcony 4.95m	1	4.95	-	2.2	10.89m <sup>2</sup>	
1	Deduction at door, window, ventilator						
2	Main door	1	1.1	-	2	2.2m <sup>2</sup>	
3	Door	2	0.9	-	1.8	3.2m <sup>2</sup>	
4	Door1	3	0.75	-	1.8	4.05m <sup>2</sup>	
5	Window	1	1.5	-	1.2	1.8m <sup>2</sup>	
6	Window1	3	1.2	-	1.2	4.32m <sup>2</sup>	
7	Window2	1	0.9	-	1.2	1.08m <sup>2</sup>	
8	Window3	1	0.9	-	0.6	0.54m <sup>2</sup>	
	Ventilators	2	0.9	-	0.23	0.414m <sup>2</sup>	
	Deduction quantity						28.534m <sup>2</sup>

Total plastering net quantity =408.09-28.534

**=379.56 m<sup>2</sup>**

**White washing 2coats inside and outside**

S.no	item	No.	length	Breadth	height	quantity	total
1	Same as plastering Above						<b>379.56m<sup>3</sup></b>
	<b>white washing for ceiling</b>						
	Drawing	1	3.35	4.95	-	16.582m <sup>2</sup>	
	Kitchen	1	3.4	2.2	-	7.48m <sup>2</sup>	
	Dining	1	3.5	2.74	-	9.6m <sup>2</sup>	
	Wide balcony	1	1.22	4.95	-	6.04m <sup>2</sup>	
	Bed room	1	3.62	3.2	-	11.59m <sup>2</sup>	
	m.bed room	1	4.34	3.2	-	13.89m <sup>2</sup>	
	toilet at m.bed room	1	2.13	1.22	-	2.6m <sup>2</sup>	
	toilet ceiling above b/w dining & bedroom	1	2.48	1.22	-	3.03m <sup>2</sup>	
	White washing Above ceiling	1	3.27	1.22	-	3.87m <sup>2</sup>	74.4 m <sup>2</sup>

Net quantity of white washing inside and outside=**453.943m<sup>2</sup>**

**PAINING FOR BLOCK B**

<b>s.no</b>	<b>item</b>	<b>No.</b>	<b>length</b>	<b>Breadth</b>	<b>height</b>	<b>quality</b>	<b>Explanatory notes</b>
	All round the block B out side	1	36.3	-	3	108.9m <sup>2</sup>	
	Drawing	1	16.6	-	3	49m <sup>2</sup>	
	Kitchen	1	11.2	-	3	33.6m <sup>2</sup>	
	Dining	1	12.48	-	3	37.44m <sup>2</sup>	
	Bed room	1	13.64	-	3	40.92m <sup>2</sup>	
	Main bedroom	1	15.08	-	3	45.24m <sup>2</sup>	
	Toilet -1	1	6.7	-	3	20.1m <sup>2</sup>	
	Toilet in M bedroom	1	7.4	-	3	22.2m <sup>2</sup>	
	Balcony	1	7.85	-	3	23.55m <sup>2</sup>	
	c/w between dining and bedrooms	1	4.39	-	3	26.34m <sup>2</sup>	
	Deductions at balcony 4.95m		4.95	-	2.2	10.89m <sup>2</sup>	

Deduction at door, window, ventilator	M.D						
	D	1	1.1	-	2	2.2m <sup>2</sup>	
	D1	2	0.9	-	1.8	3.2m <sup>2</sup>	
	W	3	0.75	-	1.8	4.05m <sup>2</sup>	
	W <sub>1</sub>	1	1.5	-	1.2	1.8m <sup>2</sup>	
	W <sub>2</sub>	3	1.2	-	1.2	4.32m <sup>2</sup>	
	W <sub>3</sub>	1	0.9	-	1.2	1.08m <sup>2</sup>	
	V	1	0.9	-	0.6	0.54m <sup>2</sup>	
		2	0.9	-	0.23	0.414m <sup>2</sup>	
	Deduction quantity						28.534m <sup>2</sup>

<b>painting for ceiling</b>						
Drawing	1	3.35	4.95	-	16.582m <sup>2</sup>	
Kitchen	1	3.4	2.2	-	7.48m <sup>2</sup>	
Dining	1	3.5	2.74	-	9.6m <sup>2</sup>	
Wide balcony	1	1.22	4.95	-	6.04m <sup>2</sup>	
Bed room	1	3.62	3.2	-	11.59m <sup>2</sup>	
m.bed room	1	4.34	3.2	-	13.89m <sup>2</sup>	
toilet at m.bed room	1	2.13	1.22	-	2.6m <sup>2</sup>	
toilet ceiling	1	2.48	1.22	-	3.03m <sup>2</sup>	
above b/w dining & bedroom	1	3.27	1.22	-	3.87m <sup>2</sup>	
painting Above ceiling						74.4 m2

Net quantity of Painting inside and outside= 453.943m<sup>2</sup>

**Flooring for block B**

S.no.	item	No.	length	Breadth	height	quantity	Explanatory notes
1.	Drawing	-	3.35	4.95	-	16.6m <sup>2</sup>	
2	Kitchen	-	3.4	2.2	-	7.5m <sup>2</sup>	
3	Dining	-	3.5	2.74	-	9.6m <sup>2</sup>	
4	Bed room	-	3.62	3.2	-	11.6m <sup>2</sup>	
5	M bed room	-	4.35	3.2	-	13.92m <sup>2</sup>	
6	Wide balcony	-	1.11	4.84	-	5.4m <sup>2</sup>	
7	Toilet-1	-	2.13	1.22	-	2.6m <sup>2</sup>	
8	Toilet-2 [attached bath room]	-	4.34	3.2	-	13.99m <sup>2</sup>	
9	Wash room	-	3.17	1.22	-	3.87m <sup>2</sup>	
	Total flooring B						85.08m <sup>2</sup>

**Detailed estimation of water over head tank**

<b>S.N O</b>	<b>ITEM</b>	<b>N O</b>	<b>LENGT H (L)</b>	<b>BREDT H (B)</b>	<b>HEIGH T/ DEPTH (D)</b>	<b>QUANTI TY (Q)</b>	<b>TOTAL QUANTI TY</b>
1.	<b>R.C.C1:2:4) COLUMNS</b>	4	0.3	0.3	1.5	0.54M <sup>3</sup>	
2.	BEAMS	4	5.6	0.3	0.3	2.016 M <sup>3</sup>	
3	R.C.C BOTTOM SLAB	1	5.6	5	0.2	5.6 M <sup>3</sup>	
	FOR SIDE WALLS	4	5.4	0.15	2	6.48 M <sup>3</sup>	
4.	FOR COVER(TOP)S LAB	1	5.6	5.6	0.1	3.14 M <sup>3</sup>	
	Deduct for man hole	1	0.6	0.6	0.1	0.036 M <sup>3</sup>	
	Net quantity of R.C.C for over head tank					3.104 M <sup>3</sup>	

**Detailed estimation of R.C.C STAIR CASE**

S.N O.	DESCRIPTION OF WORK	MESUREMENTS			QTY.	NET QTY
1	<b>R.C.C (1:2:4) with 20 mm size HBG metal with required quantity of steel/cum of concrete</b>					
	(a) Toe wall (2.0+2(0.35))	1 x 1	2.7	0.35	0.45	0.45m <sup>3</sup>
	(b) waist slab for I and II flights L = 2.50 <sup>2</sup> +1.65 <sup>2</sup> = 2.995 or 3 m	1 x 2	3	1	0.12	0.12 m <sup>3</sup>
(c) Landing middle and first floor : L = 2.00+2x(0.35) ; B = 1.00 x (0.35) (full wall bearing )	1 x 2	2.7	1.35	0.16	1.16 m <sup>3</sup>	2.31 m <sup>3</sup>
2	Brick masonry in CM (1:5) thread and rises 0.25 0.15	2 x 10	1	1/2(0.25+0.15)		4.0 m <sup>3</sup>
3	Plastering with CM (1:4) , 12 m thick					
	(a) Thread and Rise	2 x 10	1	(0.25+0.15)		8.00 m <sup>3</sup>
	(b) End steps					8.50 m <sup>3</sup>



# **ABSTRACT ESTIMATION**

**AS PER S.S.R 2011-2012**

S.NO	MATERIAL	PER	RATE IN Rs
1	COST OF 20 MM HBG METAL	M <sup>3</sup>	975
2	COST OF 40 MM HBG METAL	M <sup>3</sup>	560
3	COST OF RR STONE	M <sup>3</sup>	150
4	COST OF CRR STONE	M <sup>3</sup>	300
5	COST OF SAND	M <sup>3</sup>	425
6	COST OF CEMENT	M <sup>3</sup>	8400
7	COST OF BRICK	M <sup>3</sup>	3800
	LABOUR CHARGES		
8	I CLASS MASSON	HEAD/DAY	375
9	II CLASS MASSON	HEAD/DAY	250
10	MAN MAZDOORS	HEAD/DAY	200
11	WOMAN MAZDOORS	HEAD/DAY	200
12	MIXING CHARGES		40

**LEAD STATEMENT**

S.NO	LEAD STATEMENT										
S.NO	TYPE OF MATERIAL	INITIAL COST IN RS	per	Laed rate in Rs.	Blast ing Charges	Signo rage chrge s	Cees s Char ges	Tu rn Ov er ta x	Rat e At site	source	COST FOR CONSUMER IN (Rs)
1	40 mm HBG Metal	560	Cu. m	100	70	50	20	15	815	QUARRY	815
2	20 mm HBG Metal	975	Cu. m	100	70	40	30	35	1250	QUARRY	1250
3	SAND FOR MORTAR	425	Cu. m	110		30	30	8	603	VAGU	603
4	SAND FOR FILLING	100	Cu. m	110		30	30	8	278	VAGU	278
5	C.R. STONE FOR HBG FOR BASEMENT	300	Cu. m	100	70	35	25	8	538	QUARRY	538
6	R.R. Stone Masonary	150	Cu. m	100	70	35	25	8	388	LOCAL	388
7	Cement (OPC) 53 GRADE	8400	Cu. m	100				100	8600	LOCAL	8600
8	STEEL (HYSD)	39000	T	100					39100	LOCAL	39100
9	Bricks	3800	1000 no's						3800	LOCAL	3800
10	SHABAD STONES	50	M <sup>2</sup>	90	70				210	LOCAL	210
11	WHITE PAINT	50	1 KG	0					50	LOCAL	50
12	PAINT	400	1 LIT.	0					400	LOCAL	400

**CUM-UNIT RATES**

1)	RR masonry in CM (1:6) prop using with hard Granite stone for foundation and basement.				
	1.10 cu.m	Cost of RR stone	388 / cu.m	426.8	
	0.34 cu.m	Cost of sand	603 / cu.m	205.02	
	0.34 cu.m	Hand mixing charges	40.00 / cu.m	13.6	
	0.54 No.s	Masons 1 <sup>st</sup>	375/ each	202.5	
	1.26 No.s	Masons 2 <sup>nd</sup>	250 / each	315	
	1.40 No.s	Man mazdoor	200 / each	280	
	1.40 No.s	Women mazdoor	200 / each	280	
	0.17 cu.m	cost of cement	8600 / cu.m	1462	
		Cost for RR masonry in cm (1:6)			Rs = 3184.92

2)	Cement masonry second sort in CM (1:6) prop using with hard Granite stone for basement.				
	0.60 cu.m	Cost of CR stone	538 / cu.m	322.8	
	0.50 cu.m	Cost of RR stone	388 / cu.m	194	
	0.32 cu.m	Cost of sand	603 / cu.m	192.96	
	0.32 cu.m	Hand mixing charges	40 / cu.m	12.8	
	0.32 No.s	Masons 1 <sup>st</sup>	375 / each	120	
	0.75 No.s	Masons 2 <sup>nd</sup>	250 / each	187.5	
	1.75 No.s	Man mazdoor	200 / each	350	
	1.40 No.s	Women mazdoor	200 / each	280	
	0.17 cu.m	cost of cement	8600 / cu.m	1462	
		Cost for RR masonry in cm (1:6)			Rs = 2799.26

3)	Brick masonry in CM (1:6) Proportion using second class bricks for super structure			
	0.20 cu.m	Cost of Sand	603 / cu.m	120.6
	0.20 cu.m	Hand mixing charges	40 / cu.m	8
	0.42 No.s	Brick layer 1 <sup>st</sup> class	300 / each	126
	0.98 No.s	Brick layer 2 <sup>nd</sup> class	250 / each	245
	0.70 No.s	Men mazdoor	200 / each	140
	2.10 No.s	Woman mazdoor	200 / each	420
	0.17 cu.m	Cost of cement	8600 / cu.m	1462
	1.0 cu.m	Scaffolding Charges	50 / cu.m	50
	512.0 no's	Bricks	3800 / 1000 no.	1945.6
		Cost for brick masonry in cm (1:6)		Rs= 4396.6

4)	R.c.c work (1:2:4) mix using 20 mm guage Hg metal for columns ,beams, slabs, footings and sunshades. For C.C(1:2:4) we are preparing a supplementary data and including cost and conveyance of all material and seignorage charges .Etc, complete 1 cu.m			
	0.92 cu.m	Cost of 20 mm HBGM	1250 / cu.m	608.9204
	0.46 cu.m	Cost of sand	603 / cu.m	28.196
	0.12 No.s	Masons 1 <sup>st</sup> class	375 / each	15.48
	0.28 No.s	Masons 2 <sup>nd</sup> class	250 / each	31.948
	2.10 No.s	Men mazdoor	200 / each	178.29
	3.50 No.s	Woman mazdoors	200 / each	297.15
	0.23 cu.m	Cost of cement	8600 / cu.m	727.536
	1.0 cu.m	Centering charges	500	413
				Rs = 5140.38

5)	C.C 1:4:8 mix using 40 cm gauge. Hg metal , including cost and conveyance. All materials and labour charges and seig : etc,. Complete per 1 cu.m.			
	0.92 cu.m	Cost of 40 mm HBGM	815 / cu.m	749.8
	0.46 cu.m	Cost of sand	603 / cu.m	277.38
	0.46 cu.m	Hand mixing charges	40 / cu.m	18.4
	0.06 No.s	Masons 1 <sup>st</sup> class	375 / each	22.5
	0.14 No.s	Masons 2 <sup>nd</sup> class	250 / each	35
	1.80 No.s	men mazdoors	200 / each	360
	1.40 No.s	Woman mazdoors	200 / each	280
	0.13 cu.m	Cost of cement	8600 / cu.m	1118
				2861.08Rs

6)	Painting best synthetic enamel paint 3 coats over a primary coat to new wood work including cost of all materials and labour charges and seig. Charges etc. complete for 10 sq.m			
a)	For Primary coat			
	0.60 kgs.	Cost of white lead	52	31.2
	1.00 kgs	Cost of whiting	10	10
	0.60 lit.	Cost of lince oil	65	39
	0.21 No.s	Painters 1 <sup>st</sup> class	18 0	37.8
	0.49 No.s	Painters 2 <sup>nd</sup> class	14 0	68.6
				Rs = 186.6
b)	Enamil Paint two coats.			
	1.20 Ltr.	Cost of synthetic enamel paint	40 0	257.28
	0.36 No.s	Painters 1 <sup>st</sup> class	18 0	43.2
	0.84 No.s	Painters 2 <sup>nd</sup> class	14 0	106
				662.4
	Total cost of painting with enamel paints is Rs. 849			

7)	Flooring with marbles stone slabs for 25 cu.m. thick over a bed of sand 3 inches. Thick and pointed with cm (1:3) including cost and conveyance charges and seign charges etc.,			
	10.50 sq.m	Cost of shahbad slab 25 mm thick	50 0	5250
	0.76 cu.m	cost of sand	60 3	458.28
	0.96 No.s	Masons 1 <sup>st</sup> class	37 5	360
	2.24 No.s	Masons 2 <sup>nd</sup> class	25 0	560
	2.2 No.s	Men mazdoors	20 0	440
	1.10 No.s	Women mazdoors	20 0	220
				7288.28 /10 sq.m



8)					
	Pointing with cm (1:3) to shah bad stones slab flooring including cost and conveyance. All material and labour charges and segn charges.				
A	0.02 cu.m	Cost of sand	603 / cu.m		
B	0.02 cu.m	Hand mixing charges	40 / cu.m	603	12.06
C	0.48 No.s	Brick layer 1 <sup>st</sup> class	300/ each	40	0.8
D	0.12 No.s	Brick layer 2 <sup>nd</sup> class	250 / each	300	144
E	0.50 No.s	Men mazdoors	200 / each	250	30
F	1.10 No.s	Women mazdoors	200/ each	200	100
g	0.01 cum	Cost of cement	8400 / each	200	220
				8400	84
					590.86

9)	Plastering with C.M (1:6) proportion				
	0.92 cu.m	Cost of sand	603 / cu.m	603	554.76
	0.17 cu.m	Cement	8400 / cu.m	8400	1428
	0.50 No.s	Masons 1 <sup>st</sup> class	375 / each	375	187.5
	0.40 No.s	Masons 2 <sup>nd</sup> class	250 / each	250	100
	0.35 cu.m	Mixing mazdoors	40/ each	40	14
	2.10 No.s	Men mazdoors	200 / each	200	420
	3.00 No.s	Women mazdoors	200 / each	200	600
					3304.26

**PERCENTAGE OF STEEL IN R.C.C WORK**

R.C.C WORK	QUANTITY	% OF STELL	STEEL QUANTITY	WEIGHT OF STEEL (kg)	weight in tones
FOOTINGS	164.97	0.5	0.824	6475.0725	6.4750725
Plinth beam	11.6	1	0.116	910.6	0.9106
columns	6.3	4	2.52	1978.2	1.9782
<b><u>Ground floor</u></b>					
Plinth beam	28.89	1	0.289	2267.865	2.267865
<b><u>COLUMNS</u></b>	16.88	4	6.75	5300.32	5.30032
Beams	<b>43.76</b>	1	0.45	3435.16	3.43516
<b><u>Slab</u></b>	69.07	0.15	0.104	813.29925	0.81329925
					21.1805168
R.C.C WORK	QUANTITY	% OF STELL	STEEL QUANTITY	WEIGHT OF STEEL (kg)	weight in tones
FOOTINGS	164.97	0.5	0.824	6475.0725	6.4750725
Plinth beam	11.6	1	0.116	910.6	0.9106
columns	6.3	4	2.52	1978.2	1.9782
Ground floor					
Plinth beam	28.89	1	0.289	2267.865	2.267865
COLUMNS	16.88	4	6.75	5300.32	5.30032
Beams	43.76	1	0.45	3435.16	3.43516
Slab	69.07	0.15	0.104	813.29925	0.81329925
					21.1805168

**FORMULA**

FOR CALCULATE PERCENTAGE ( %) OF STEEL IN R.C.C=

$$\text{QUANTITY} \times \% \text{ OF STEEL} \times 7850$$

THE QUANTITY SHOULD BE COMING IN KG CONVERT INTO TONES BY  
DIVIDE WEIGHT OF STEEL /1000

**ABSTRACT ESTIMATION**

S.NO	ITEMS	QUANTITY	UNIT	RATE	PER	AMOUNT	TOTAL AMOUNT IN Rs
<b>GROUND FLOOR</b>							
1	EARTH WORK EXCAVATION	1217.68	m <sup>3</sup>	280	m <sup>3</sup>	340950.4	
2	earth work filling	653.5	m <sup>3</sup>	150	m <sup>3</sup>	98025	
3	C.C. BED (1:4:8)	24.7	m <sup>3</sup>	2861.08	m <sup>3</sup>	70668.676	
4	FOUNDATION WITH R.C.C (1:2:4)	164.97	m <sup>3</sup>	5140.38	m <sup>3</sup>	848008.4886	
5	BASEMENT WITH C.R.S MASNORY (1:6)	11.6	m <sup>3</sup>	150	m <sup>3</sup>	1740	
6	STEEL REQUIRED IN R.C.C WORK (HYSD)(A) ground floor	21.18	T	39100	T	828138	
7	FLOORING WITH ANDOOR STONES	101.672	m <sup>3</sup>	100	m <sup>3</sup>	10167.2	
							21,97,697.76
<b>FIRST FLOOR-BLOCK-A</b>							
8	Brick masonry in country bricks of standard size and using in CM(1:8)	28.6	m <sup>3</sup>	4396.6	m <sup>3</sup>	125742.76	
9	R.C.C. (1:2:4) for beams, columns, slabs.	28.27	m <sup>3</sup>	5140.38	m <sup>3</sup>	145318.5426	
10	STEEL REQUIRED IN R.C.C WORK (HYSD)	2.66	T	39100	T	104006	
11	Plastering using cm (1:6)	430.76	m <sup>2</sup>	330.4	m <sup>2</sup>	142323.104	
12	Flooring with marbles	90.4	m <sup>2</sup>	728.8	m <sup>2</sup>	65883.52	
13	WHITE WASHING(TWO COATS WITH ALL HYDRAULIC LIME )	550.96	m <sup>2</sup>	18.6	m <sup>2</sup>	10280.9	
14	PAINTING (READYMIXED ENAMEL PAINT)	550.96	m <sup>2</sup>	66.24	m <sup>2</sup>	36495.6	
15	DOORS AND WINDOWS	.-	.-	.-	.-	64550	694600.42

**FIRST FLOOR-BLOCK-B**

16	Brick masonry in country bricks of standard size and using in CM(1:8)	24.97	m <sup>3</sup>	4396.6	m <sup>3</sup>	109783.102	
17	R.C.C. (1:2:4) for beams, columns, slabs.	20.1	m <sup>3</sup>	5140.38	m <sup>3</sup>	103321.638	
18	STEEL REQUIRED IN R.C.C WORK (HYSD)	2.66	T	39100	T	104006	
19	Plastering using cm (1:6)	408.09	m <sup>2</sup>	330.4	m <sup>2</sup>	134832.936	
20	Flooring with marbles	85.08	m <sup>2</sup>	728.8	m <sup>2</sup>	62006.304	
21	WHITE WASHING(TWO COATS WITH ALL HYDRAULIC LIME )	453.943	m <sup>2</sup>	18.66	m <sup>2</sup>	8470.58	
22	PAINTING WITH READY MIXED ENAMEL PAINT	453.943	m <sup>2</sup>	66.24	m <sup>2</sup>	30069.2	
23	DOORS AND WINDOWS	.-	.-	.-	.-	51100	
							603589.76
	OVER HEAD TANK						
	R.C.C. (1:2:4) for beams, columns, slabs.	3.104	m <sup>3</sup>	5140.38	m <sup>3</sup>	15955.74	
	STEEL REQUIRED IN R.C.C WORK (HYSD)	0.243	T	39100	T	9501.3	
							25457.04
	STAIR CASE						
	Brick masonry	4	m <sup>3</sup>	4396.6	m <sup>3</sup>	17586.4	
	R.C.C. (1:2:4) for beams, columns, slabs.	2.31	T	5140.38	T	11874.28	
	Plastering	8.5	m <sup>2</sup>	330.4	m <sup>2</sup>	2808.4	
							32269.08
	LIFT COST (G+5 FLOORS)						5,00,000
	OVERAL COST						

### SERVICE CHARGES

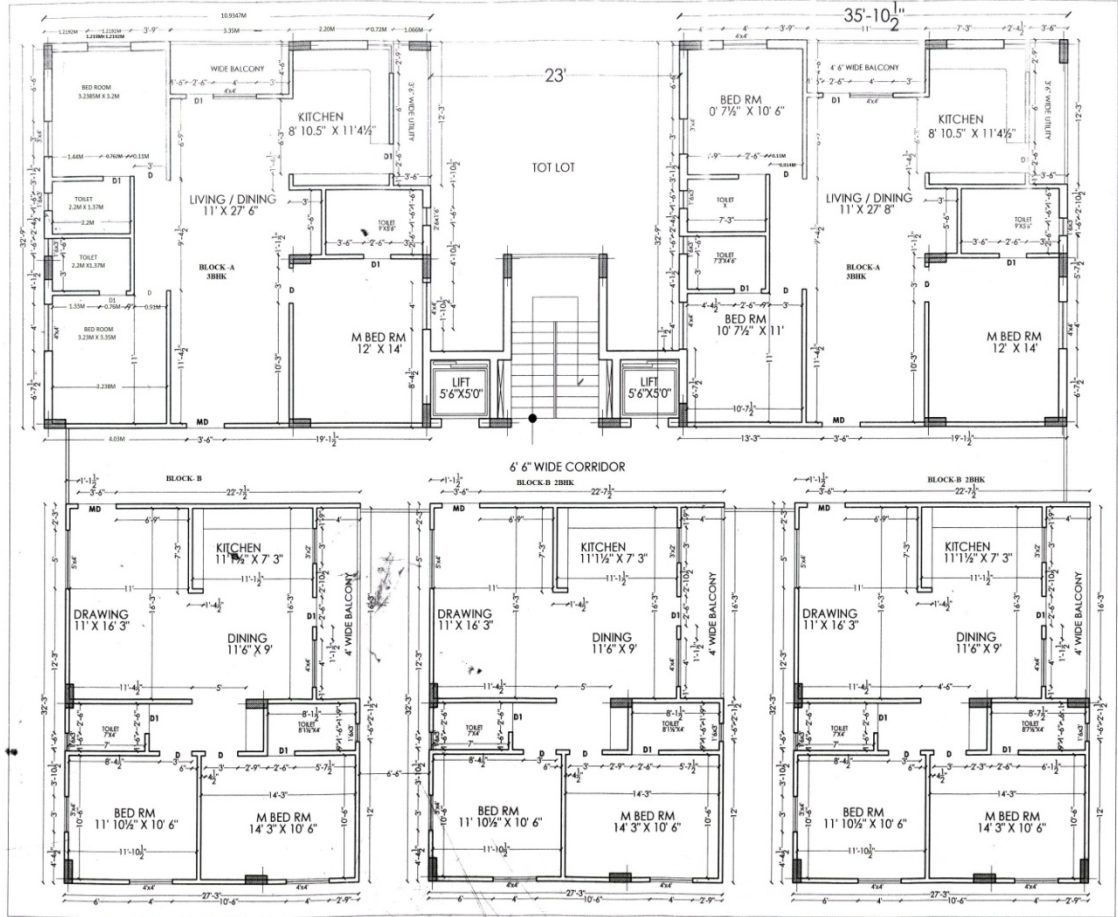
ITEMS	NO	RATE	AMOUNT IN (Rs)
OVER HEAD TANK	1	25457.04	25457.04
STAIR CASE	5	32269.08	161345.4
LIFT (OVERAL COST)	1	5,00,000	500000
Provision for water supply and sanitary arrangements @12.5%			2360543.846
Provision for electrification @7.5%			1416326.308
Provision for architectural appearance @2%			377687.0154
Provision for unforeseen items 2%			377687.0154
Provision for P.s. and contingencies @4%			755374.0308
		TOTAL	5974420.656
TOTAL FLATS = 25	59,74,420.7Rs		
EACH FLAT COST (SERVICE CHARGES)	2,38,976.8Rs		

**ABSTRACT (TOTAL)**

S.NO	ITEMS	NO'S	RATE	AMOUNT(Rs)
1	GROUND FLOOR	1	2197697.765	2197697.765
2	BLOCK-A	10	694600.4166	6946004.166
3	BLOCK-B	15	603589.76	9053846.4
	SERVICE CHARGES			
4	OVER HEAD TANK	1	25457.04	25457.04
5	STAIR CASE	5	32269.08	161345.4
6	LIFT (OVERAL COST)	1	5,00,000	500000
7				
			<b>TOTAL</b>	<b>18884350.77</b>
8	Provision for water supply and sanitary arrangements @12.5%			2360543.846
9	Provision for electrification @7.5%			1416326.308
10	Provision for architectural appearance @2%			377687.0154
11	Provision for unforeseen items 2%			377687.0154
12	Provision for P.s. and contingencies @4%			755374.0308
			GRASS AMOUNT	2,41,71,968.99
EACH FLAT	NET AMOUNT	GROUND FLOOR	OTHER CHARGES	TOTAL
BLOCK-A(3BHK)	694600.4	87907.91	238976.8	1021485.11
BLOCKB (2BHK )	603589.76	87907.91	238976.8	930474.47

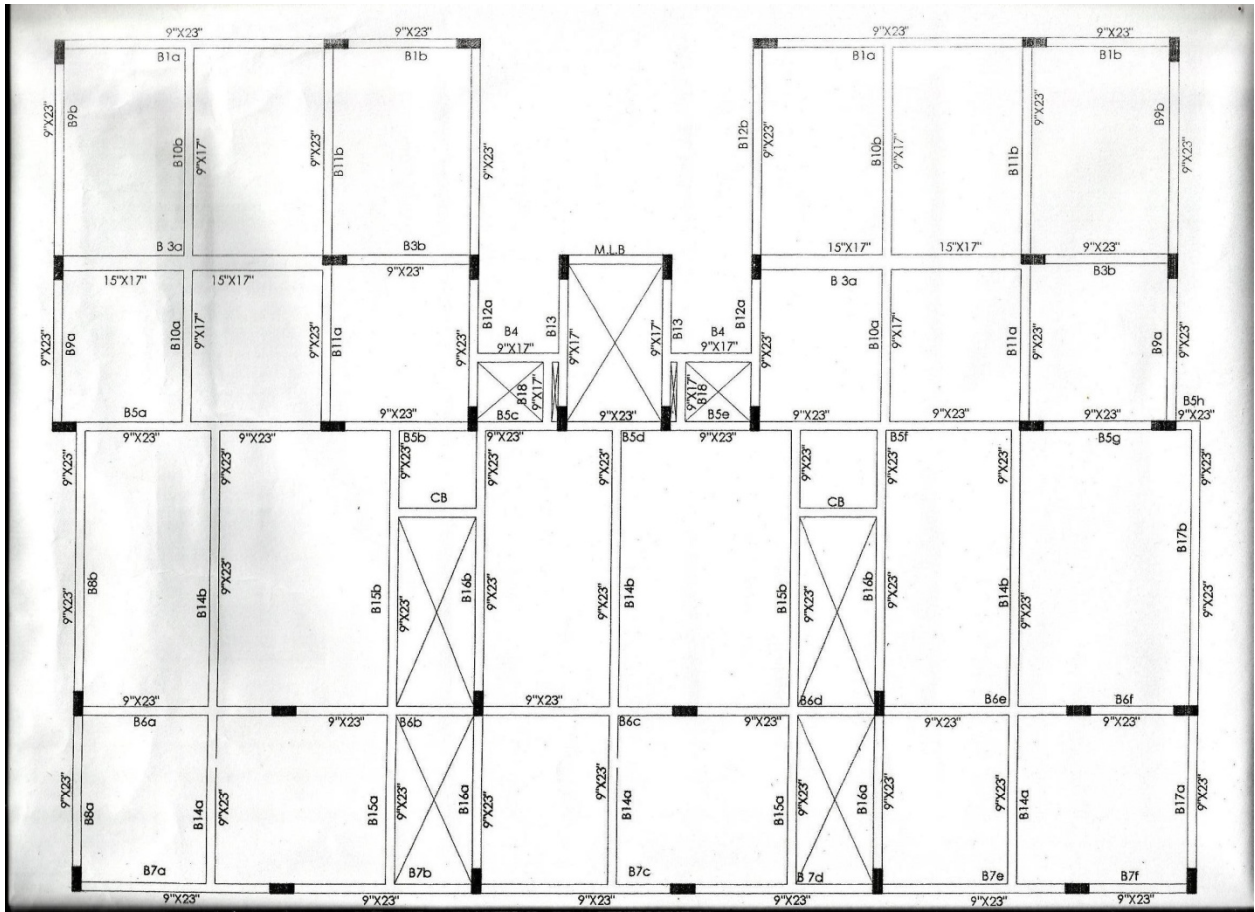
# **DRAWINGS**

PLAN

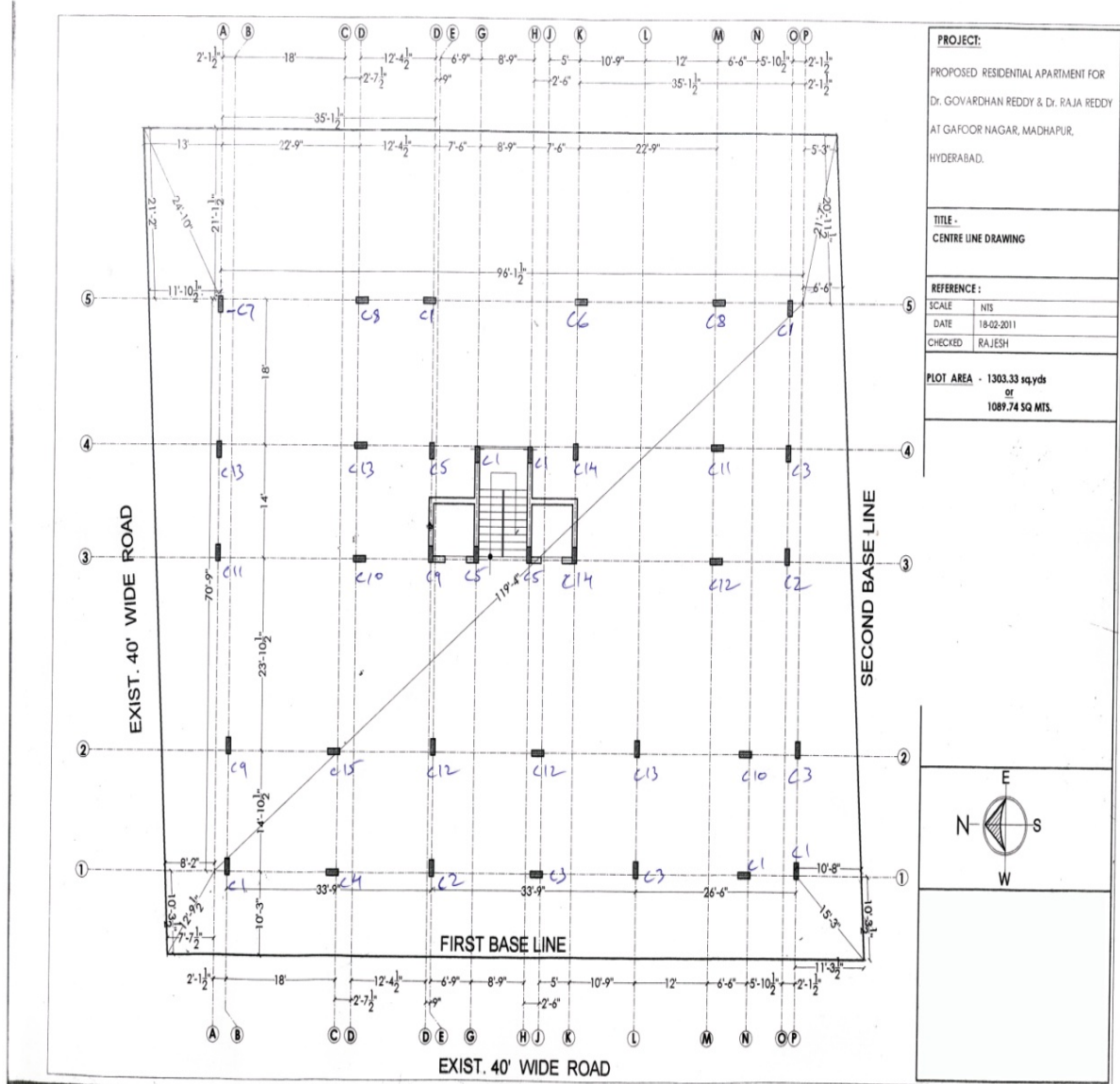




# BEAM FRAMING AND BEAM NUMBERS DETAILS



# COLUMNS DETAILS





## **BIBLIOGRAPHY**

### **STANDARD CODES**

1. I.S 456-2000
2. NATIONAL BUILDING CODES(NBE)

### **ESTIMATING**

ESTIMATION AND COSTING IN CIVIL ENGG ----B.N DATTA

CONSTRUCTION PROJECT MANAGEMENT -----KUMAR NEERAJ JHA

### **COSTING**

STANDARD SCHEDULED OF RATES (S.S.R - 2011-12)