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COMPARATIVE ANALYSIS BETWEEN ACTIVITY BASED COSTING AND CONVENTIONAL COSTING METHOD APPLICABLE TO CONSTRUCTION INDUSTRY

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Abstract— In construction industry Conventional costing method and activity based costing method is used for cost calculation. In this paper cost calculation of residential building is done by using activity based method is nothing but actual cost calculation method and conventional method is nothing but estimated cost calculation method. Also gives the importance, limitations of ABC method over the conventional costing method, where the use of conventional method over runs the cost of product due to consideration of single volume unit. So activity based costing method can be considered as an alternative paradigm to traditional cost-based accounting systems. The main aim of this paper is to give the relationship between actual cost and estimated cost from which comparison between activity based method and conventional method is done on the basis of result. This obtained result is shown by bar chart.

Keywords-activity based costing; conventional costing; overhead cost; cost estimation.

I. INTRODUCTION

Now a day in global computation to increase profitability accurate cost estimation is very important. Mainly two methods of cost estimation such as activity based costing method and conventional costing method. Contractor are used the different process, method, and technology for preparing the construction cost estimate. In cost estimation there are two important steps are used quantity estimation and précising. The main goal of ABC system to calculate the direct cost of work. If cost is calculated to a particular work through its consumption of activity becomes direct cost of the product. In conventional costing system, cost is calculated through labor hour, machine hours etc., But in Activity-Based Costing estimation is done as per no of labor, time require for completion of particular work is determined and its costs are directly charged to each work. ABC tries to ascertain the factors that cause each major activity, cost of such activities and the relationship between activities and work produced.

1. Objectives

The main objectives of this study include the following.

1) To study the activity based method and conventional method.
2) Compare the cost estimation by both the method.
3) Give the suitability of method for cost estimation.

II. METHODOLOGY

2.1 Activity based costing method:

ABC method is the most accurate and actual cost estimation method. It traces the cost through activity performed. It classifies activity in to value added and non-value added activity and eliminate the non-value added activity. According to ABC method for completion of each work require no of activity such as engineering, purchasing, services

etc. Then each activity requires different type of resources such as time, labor, material etc. from which cost is calculated according to the performance of each activity. Total cost of project is calculated by adding cost of each activity. The estimator divide the whole project into no of individual work items and estimate the quantities of material require for each work item, Labor, equipment and material needed for executing the work is determined based on methodology. Construction of building element consist of no work item for example a concreting of slab require several item such as forming , reinforcing, concrete pouring, finishing and curing.

Activity based method classifies in to different categories such as:

1) Unit-level activities: these are performed for each unit of product;
2) Batch-level activities: these are undertaken every time a batch is produced;
3) Product-sustaining activities; and
4) Facility-sustaining activities

Implementation of Activity based costing system takes place following ways:

1) Identify the activity.
2) Determine the activity cost.
3) Determine the cost drives.
4) Collecting the activity data.
5) Computing the product cost.

2.2 conventional costing method :

King (2000:2) states that conventional cost systems focus on the product in the costing process. Costs are traced to the product because each product item is assumed to consume the resources. Therefore traditional allocation bases measure only attributes of the individual product items. For example, these would be the number of direct labor hours or machine hours or the value of materials consumed. However, in many modern manufacturing operations, overheads are not homogeneous in terms of being primarily influenced by volume

2.3. Advantages:

It reduces the cost, It make improvement in quality by improving processes, It applies accurate indirect cost for each product, Control the overall cost, Increases the profitability**.**

2.4. Limitations:

1) It is very tedious method.

2) It is time consuming process.

3) For implementation of ABC product and process variety required**.**

III. CASE STUDY

The implementation study presented here took place in one of the residential building in Pune region. The whole project is on G+3 residential building in which it divide into five part such as

a) Plot development
b) Ground floor
c) Frist floor
d) Second floor
e) Third floor
f) Above terrace

a) Plot development : This work can be divided into no of sub activity such as pcc, Rcc, Rubble masonry, Steel work, etc., then cost for each sub activity calculated according to the sources consuming for executing each activity such as coarse aggregate , river sand , steel , rubble, crushed sand, cement bags , labour etc.
b) Ground floor : This work can be divided into no of sub activity such as pcc, Rcc, Rubble masonry, Steel work, plastering, soiling, trimix etc., then cost for each sub activity calculated according to the sources consuming for executing each activity such as coarse aggregate , river sand , steel , rubble, crushed sand, cement bags , labour etc.
Similar technique is used for first, second, third floor further work. Cost estimation of plot development, Ground floor of residential building is done based on activity based costing is shown below in which actual cost is calculated as per the material consumption such as aggregate, crushed sand, labour rate, cement ,river sand, steel, etc .for completion of work.

Table no1.

Abstract Sheet						
Sr.	**Description**	**Qty**	**Uni**	**Rate**	**Per**	**Amount**
	PLOT DEVELOPMENT					
1	Providing and laying in situ, cement	7.756	Cu	4885.2	Cum	37889.61
2	Providing and laying plum concrete	3.396	Cu	3534.6	Cum	12003.50
3	Providing and laying in situ cement	9.069	Cu	5948	Cum	53942.41
4	Providing uncoursed rubble masonry	66.87	Cu	3186.9	Cum	213117.56
5	Providing and fixing reinforced steel	0.476	MT	66500	MT	31654.00
	GROUND FLOOR					
1	Providing and laying in situ, cement	19.88	Cu	4885.2	Cum	41325.18
2	Providing and laying plum concrete	8.459	Cu	3834.6	Cum	527497.47
3	Providing and laying in situ cement	137.5	Cu	5948	Cum	551687.47
4	Providing fly ash brick masonry with	92.75	Cu	5349.7	Cum	230744.12
5	Providing fly ash brick masonry with	43.13	Cu	5371.5	Cum	85915.71
6	Providing and fixing reinforced steel	15.99	MT	66500	MT	9686250.35
7	Providing internal cement plaster	145.6	Sqm	234.1	Sqm	82482.79
8	Providing internal cement plaster	352.3	Sqm	274.1	Sqm	24953.52
9	Providing rough cast cement plaster	91.03	Sqm	765	Sqm	114702.01
10	Laying 15cm. to 23 cm. trap/ granite/	149.9	Cu	89.5	Cum	2053.65
11	Providing and laying in situ cement	22.94	Cu	5603	Cum	128565.50
						11824784.8

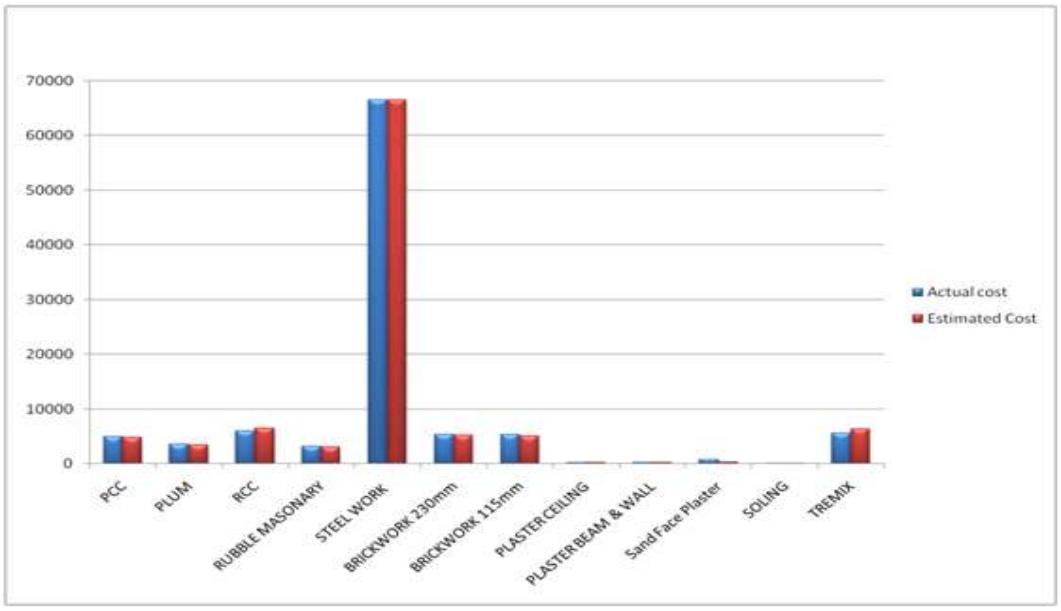
In table no 2 cost calculation of plot development, Ground floor of residential building is done on the bases conventional method such as district schedule rate in which cost is calculated as per the quantity volume.

Table no2

Abstract Sheet						
Sr.	**Description**	**Qty**	**Unit**	**Rate**	**Per**	**Amount**
	PLOT DEVELOPMENT					
1	Providing and laying in situ, cement	7.756	Cum	4805	Cum	37267.58

2	Providing and laying plum concrete with 70	3.396	Cum	3400	Cum	11546.40
3	Providing and laying in situ cement	9.069	Cum	6460	Cum	58585.74
4	Providing uncoursed rubble masonry of	66.873	Cum	3091	Cum	206704.44
5	Providing and fixing reinforced steel for	0.476	MT	66000	MT	31416.00
	GROUND FLOOR					
1	Providing and laying in situ, cement	19.883	Cum	4805	Cum	40646.74
2	Providing and laying plum concrete with 70	8.4593	Cum	3400	Cum	467712.78
3	Providing and laying in situ cement	137.56	Cum	6460	Cum	599176.37
4	Providing fly ash brick masonry with	92.752	Cum	5189	Cum	223809.87
5	Providing fly ash brick masonry with	43.132	Cum	5130	Cum	82052.85
6	Providing and fixing reinforced steel for	15.995	MT	66000	MT	9613421.40
7	Providing internal cement plaster 20mm	145.66	Sqm	251	Sqm	88437.34
8	Providing internal cement plaster 20mm	352.34	Sqm	251	Sqm	22850.54
9	Providing rough cast cement plaster	91.038	Sqm	347	Sqm	52028.23
10	Laying 15cm. to 23 cm. trap/ granite/	149.94	Cum	125	Cum	2868.23
11	Providing and laying in situ cement	22.946	Cum	6380	Cum	146394.41
						11684918.93

From above two table a graph is drawn between actual cost and estimated cost for comparison between them.



IV. CONCLUSION

From the above case study we have to conclude that the activity based method is useful for accurate cost estimation. From the graph it is shown that the cost of some work according to ABC method is equals to the conventional method or some of work cost over lies the conventional cost. Also activity based method helps to determine the what amount of material,

time,labour etc. consumed for completion of particular work. Activity based method is useful for monitoring the hidden losses and profits of the conventional method.

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