

Study of Cost and Estimate of Building Material

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Abstract: Cost and estimate is the technique of calculate the quantity of various type of building material. Necessary for preparing and estimate are drawings like Plans, Section & Elevation and Detail about what type of material is used. Estimate decide Whether the proposed plans matches the fund available or not.

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1. Introduction

Estimating is the probable cost of the work and is usually prepared before the start of the project. Before undertaking and project it is necessary to know its probable cost and that can only obtained by preparing estimate. The probable cost also known as estimate cost. If the actual cost is less than the probable cost, there is no difficulty as surplus amount will be left with the owner. If the estimate cost is more than actual cost, which is more likely case.

2. Literature review

A. Improving project cost management practice

A project manager should sufficient knowledge and attention that focuses on different areas, from which project cost management is the one to identify required resources and keep budget control. contractors, on receipt of work tender, prepare cost estimates and based on the estimates, they quote the estimated price of the works and then agrees for executing the work followed by drawing like plan, section, elevation of work based on the quantities and costs reflected in the bill of quantities (BOQ) which forecasts the contractors' commitment for resources, input costs and the profits which they expect. Once construction commences, contractors attempt to accomplish the work in a way that keep the cost of carrying out the work, with in the money that will be reimbursed to them as a result of valuation of completed works. These processes involve the tasks which most contractors are involved and which need systematic approach.

Construction cost includes identification, quantification and valuation of the various direct and indirect cost components. The total construction cost of a project is collected of four cost categories; direct costs which can be correlated to specific activity, indirect costs which cannot be correlated directly to the physical activity, risk allowances which is incorporated to take

care of possible risks and contractors' profit.

It includes planning, estimating, budgeting, financing, managing and controlling costs, and interaction of each other to complete within the approved budget, are the sub processes which involved in the project cost management process.

B. Techniques in construction project cost estimate

A survey and analysis were performed on different proposals in order to tackle the problem of developing building construction cost estimation based on intelligent techniques. The method of the presented paper was based on two different parts. The first part was concerned with a literature survey to examine the current state of intelligent solutions in the building construction industry. Regarding this matter, we have to choose exclusively the journals that specialize in both information technology and building construction management, within a time frame of ten years.

3. Objective of study

The main objective of the study to give a reasonable accurate idea of the cost an estimate is necessary to give the owner a reasonably accurate idea of the cost to help him decide whether the works can be undertaken as proposed or require to be reduce, depending upon the availability of funds and prospective direct and indirect benefits. For government works proper sanction has to be obtained for assign the required amount. Works are often let on a lump sum basis, in which case the Estimator must be in a position to know exactly how much expenditure he is going to incur on them.

Qualification of an estimator.

1. Good estimator should possess the following qualifications:
2. A proper understanding of architectural drawings.
3. A knowledge of building materials, construction methods and customs prevailing in the trade.
4. An apprehend of a good method of preparing an estimate.
5. Information of fund collected through experience in construction work, connect to building materials required, hourly output of workers and plant, overhead expenses and costs of all kinds.
6. An apprehend of a good method of preparing an estimate.
7. A systematic and orderly form.

8. Ability to do careful and correct calculations.
9. Ability to collect, classify and evaluate data that would be useful in estimating.

4. Method of building estimate

Method 1- Long wall and short wall method

In this method, the wall along the length of room which we have to calculate estimate 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, we have to 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 found by deducting half breadth from its centre line length at each end.

Method 2- Center line method

This appropriate method for walls of similar cross sections. Here the total centre line length is multiplied by breadth and depth (bxd) of respective item to get the total quantity at a specific time. When cross walls or partitions or veranda walls combine with main wall, the centre line length gets deduct by half of breadth for each junction. Such junction or joints are studied vary carefully while calculating total centre line length. The estimates prepared by this method are fair accurate and quick.

5. Data requirement of preparing an estimate

In order to prepare a detailed estimate, the estimator must have to follow this data-

- Plans, sections, elevation and other relevant details of the work.
- Specifications indicating the exact nature and class of materials to be used in proposed site.
- The rates at which the different items of building work are carried out.

6. Principle of deciding unit of measurement

most important principles which is used for selection of unit of measurement:

1. The measurement unit is should be simple and convenient to measure, record and understand.
2. It should be one, which provides for fair payment for the building work involved.
3. In the result it should yield quantities, which are neither too small nor too large.
4. The unit of measurement may sometimes depend upon the unit for the raw material and/or labor and/or important dimensions.

7. Estimate cost of construction project

Cost of similar project- The best references for cost estimation are previous similar projects. Modify cost items and related

expenses of similar projects helps in estimation which are invaluable.

- *Material cost-* Costs for materials and supplies and shipping charges are required prior to starting estimation process.
- *Wages rate-* as specified by local government is taken for calculation of labour costs for project or Local labour rates.
- *Site condition-* increase construction costs due to: poor soil condition, heavy ground water, environmentally sensitivity area, ground water, stream or river crossings, Environmentally sensitivity area.
- *Project schedule-* The construction schedule can certainly affect the project cost. If the project requires too delay of a specific time frame, generally the price will be increased, especially if there is a significant liquidated damages condition for failure to complete within a specified deadline.
- *Quality of Plans & Specifications-* For estimate required well-prepared plans and specifications. It is extremely important that every minor detail and component of the design be properly executed and fully described. Any poorly drawn plan not only causes confusion, but places doubt in the contractor's mind which generally results in a higher bid.
- *Contingency-* The thumb rule has historically added a 10% contingency on the construction total to cover those unforeseen costs that crop up as a project evolves. During the times of high inflation or the limited amount of key construction materials and supplies, it is wise to increase the contingency to 15% or 20% for a more realistic estimate and provide a safety factor.
- *Judgement-* In the final analysis, the best component of a good cost estimate is the experience and art of practicing sound technical judgement.

8. Conclusion

As we study above data, it is concluded that for a good estimation need a proper plan, specification and other relevant detail of work and specification indicating the exact nature and class of materials to be used in proposed site. According to plan, we have to use a proper method of estimation, and also know about local labor rates. We also have to use a simple and convenient unit measurement, Unit which is easy to understand for labor.

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