Quality Improvement Program of Residential Building In Reference With Project Management Book of Knowledge Using Microsoft Project

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Abstract- *Quality planning is one of the major aspect which we come across the construction field. Every customer should be provided with the maximum quality output for the money given by them which could be done by the project manager by taking into consideration quality by its proper planning in the project. Quality has become one of the important strategic tool. It is realized as a key element to services and develop products in supporting continuing success. Quality system is set clear view for understanding, organization to follow and involving the employees which proceeding towards common goal. In the race of unending improvement, quality and its measurement plays an important role. The measurement of quality is considered as a trigger for the improvement. Improvement could not be achieved if measurement is not applied and analyzed in order to assist in identifying opportunities for improvement. If there is a defect in a construction, then it contributes to the final cost of the product and also to the maintenance cost. Defective construction is one of the factor responsible for the complete failure of a structure.*

Keywords- Quality planning, PMBOK, MSP

I. INTRODUCTION

Productive activity, human health, psychological state an indicator of human well-being is affected by quality of housing and living environment. The quality of the works of reconstruction of houses affect their comfort and durability. According to the terms of a modern market economy is necessary to improve the organizational and economic mechanism for construction. Repair and reconstruction of real estate with the qualitative component of the operations. In current state, the important socioeconomic problems of the state development are effective reproductive system of real estate. In order to solve the problem of lack in quality and improve comfort and welfare of living in all sections of the population, an approach is taken in to consideration tat us to establish a mechanism to improve the quality and availability of housing on the basis of a new approach to the system of work on reconstruction of housing and high-quality capital repairs and works on new construction.

The reference of a book is taken which is internationally published which says that the work which is carried out in the construction sector is affected with some external phase in the time of quality management which has 3 aspects in which the first is quality planning followed by quality assurance and quality control. The PMBOK stands for Project Management Body of Knowledge and it is the entire collection of processes, best practices, terminologies, and guidelines that are accepted as standards within the project management industry. Because the body of knowledge is constantly growing as practitioners discover new methods or best practices, it must be updated and disseminated. This is one of the effort that is seen by the Project Management, the global not-for-profit member association of PM professionals which captures and publishes the PMBOK within the book. The first edition of PMBOK Guide was published in 1996 and now the book has 5 editions, which got published in 2013. In this book the knowledge is provided according to which the factors such as time, machine, material, and method are the factors which affect the quality planning of the project taken in to consideration

The concept of quality planning in construction projects is to guarantee efforts to accomplish the necessary level of quality for the outcome which are well planned and organized. It is vitally required for a construction company to have an effective quality management system as it helps organizations in improving customer satisfaction whilst providing the organization with a competitive advantage over fellow competitors within the industry. It is all about obtaining customers' satisfaction that would lead to long term business and competitiveness survival for the industries thus by maintaining the quality of construction activities at a mandatory standard.

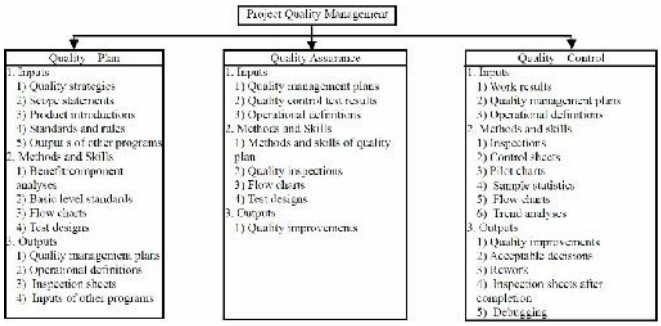

Fig 1. The main flow of project quality management.

Problem Statement

Quality planning refers specifically to the actions of the project management team or the project management team leader to engage in the action of establishing and conducting a process for the purposes of identifying and determining exactly which standards of quality are in fact relevant to the project as a whole, and also in making an effective determination as to how to satisfy them. In the recent activities around the construction industries it is observed that the quality is not maintained in the process, the reason for which is the lack of planning at initial stage where the risk involved is maximum. in order to overcome this factor affecting the poor construction the project was taken into consideration.

Objective

Quality improvement program for residential building with reference to PMBOK in MS project.

- To prepare MSP schedule and cost analysis for present case study considering factors of resources planning of time, machine, material.
- To study factors for quality planning time, machine, material on given case studies.
- To identify which quality standards relevant to the project according to ISO 9000 and implement them in the schedule.
- To study effectiveness of quality improvement planning through comparison and questioner survey.
- About MSP

Businesses, large and small, unquestionably juggle numerous projects, plans, tasks and people. Having a solution that can help them keep organized while planning and running projects, in a way that is accurate, predictable, and profitable is promising.

However, time marches on and technology evolves. Essentially, project management software programs are employed for project planning, time management, resource allocation and for change management. Project management software is among the most useful tools that can help in this project because the factors studied in this project are the inputs given in this software which could be studied and used for satisfying the objectives. The objectives include the overall planning of the work that is to be carried out in the construction work, the time required for the total work, the work is to be braked down so as to calculate the time involved in it and allocate the resources accordingly by which the cost could be analyzed. These factors which are affecting directly on the work can be analyzed in this software and accordingly the work could be carried out. This makes the software suitable to satisfy the objectives which are to be carried in this project.

MSP software is a user friendly software used in almost all the high rise construction sectors.it has number of benefits due to which the project managers prefer them to be used in order to solve and deal with difficulties which comes in between the collaboration of number of works and its scheduling. Lots of the work regarding the planning which involves large percentage of risk is involved in the initial stage of the project which could be taken care of due to the help of this software. Benefits of this software MSP are collaborate on projects internal and external communication, budget management could be done easily,
monitoring of the project could be done easily, document sharing, it increases the communication of clients and suppliers it enhances communication and hives employee responsibility in schedule creation.

II. METHODOLOGY

Fig – 2 methodology of the project

III. DATA COLLECTED

Following are the case study details collected.

The site which is taken in to consideration is STARGAZE located in Bavdhan, west Pune zone, Maharashtra 411021. The design and structural engineer team is JW consultancy. owner of this project is koltepatil The architect of this project are Manoj tatuskar and Vikas acharkar. The cost of per flat starts forms 65 lakhs onwards. Total area of the project is 1.9 acre. The total cost of tower is 14cr

III. DATA ANALYSIS

From the data collected the CAD drawings are taken into consideration and with respect to them the activities are derived which are then inserted in the MSP software according to its ascending order .ones this is done BBS (bar bending schedule) is prepared from working drawings the activities are listed out and a work breakdown structure is prepared .The important aspect of quality planning such as time, resources like machine and materials are the factors which act on the project according to the PMBOK.

Ones the work break down structure is generated the activities are allotted with the time which is given to them according to the initial data and if required the days required are given a margin of days by which it could lag or lead which is called as lag or lead. In the fig 3 we could see the days required for completion of the project is 1010days and the activities are 533. time plays an important role over here thus the activities could be crashed or tracked in order to run them simultaneously and save the time and get the update of the work which is carried at that point of time in completion phase.

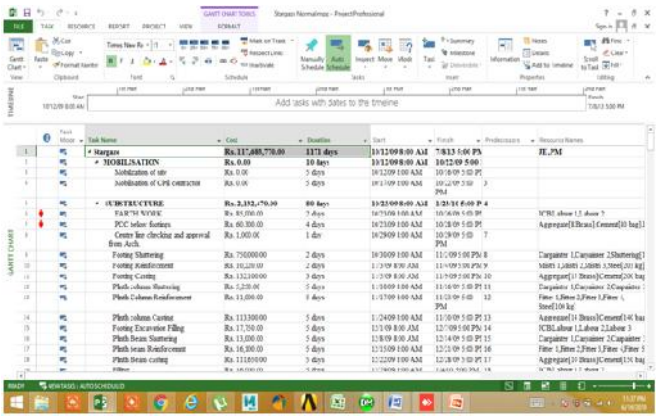

Fig – 3 scheduling of the activities

When the linking portion of the activities is completed resource sheet is generated in excel sheet which includes the labor charge the material such as cement, bricks, tiles, course aggregate, fine aggregate, CP fittings, the material regarding the mobilization, material for watchman cabin etc. the rates according to the current states in the market are mentioned in these resource sheet labor charges are also included as per the current states. Ones the resource sheet is generated according to the material, human resource and their requirements which is derived according to the requirements mentioned in the BBS (bar bending schedule).then the resource sheet is imported in the MSP software and each of the activity is allocated with the resources.

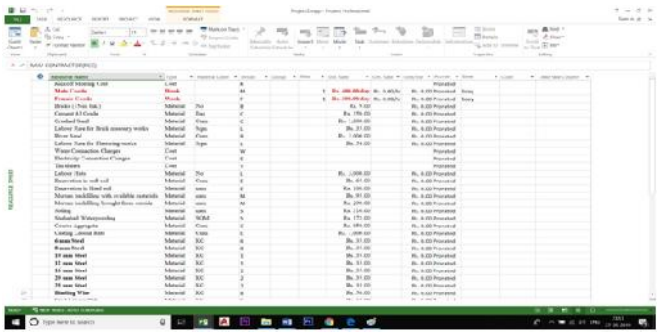

Fig – 4 resource sheet

While taking into consideration the factors affecting the quality planning of the construction in reference to PMBOK the resource was allocated and time was optimized. The conventional brick which has a length of 9cm was replaced with SA CLC brick which has a length of 120 cm which resulted in the time reduction because the area covered was maximum at a single time and the cement required for filling was less as compared to traditional method and we could see the following changes in the time required in the construction of the building. The plastering which is to be done 2 or 3 times internally in to be replaced by the material gypsum in which the cost was reduced up to a certain level.

IV. RESULTS AND DISCUSSION

In our case the red brick having a labour charge of Rs 80 per sqft for a built up area of 10,946 sqft is replaced by an alternative material which is CLC brick (lights weight) with Rs 100 per sqft with larger dimension yet reducing the transportation charges and saving the time as well. Plastering is having 3 coat brought up to 1 coat as the clc provide finishing so the is used in the construction work in order to speed up the process, simultaneously lowering the cost and time of the project up to 20%. 600*600 mm dimension tiles are replaced by 800*800 mm dimension of reducing the time and speeding up the process. Cranes, compactors, RMC , lift machines are used efficiently to reduce the time and money.

V. CONCLUSION

The proposed models show that the duration was reduced by 61 days and around 6 lakh rupees were saved due to the quality planning. Through this research work we get to know that there are paper focusing on construction defects on respective projects and poor quality cost measurement. It also shows that defective building construction not only contributes to added construction cost of the project but also the cost of maintenance, which can be substantial. By building an optimal schedule with the proposed model, project managers would be able to be aware of the potential consequences of every incident during the projects QA and QC stage of execution stage. Timely solutions to the encountered problems then can be engineered systematically.

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