Planning and Scheduling of High-Rise Building using Primavera
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Abstract:
Project Management is the Application of knowledge, skills and Techniques to project activities to meet project requirements. It is a strategic ability to do something successfully for organizations, enabling them to patch the project results to Organizational goals and thus, better compete in their markets. It can be also defined as the process and activity of planning, organizing, inspiring, and controlling resources, procedures and protocols to achieve specific goals in scientific or daily problems. A project is a temporary aim designed to produce a special product, service or result with a defined starting and end (usually time-constrained, and often constrained by funding or deliverables), undertaken to meet eccentric goals and objectives, typically to bring about beneficial change or added value. The temporary nature of projects stands in contrast with business as usual (or operations), which are recurring, permanent, or semi-permanent functional activities to produce products or services. In implementation, the management of these two systems is often quite distinct, and as such requires the development of divergent technical skills and management strategies. It has always been practiced casually, but began to evolve as a prime profession in the mid-20th century.

1. INTRODUCTION

Though technology is developing rapidly and vast day by day, the basic and fundamental needs which are required by human have not changed. In the today’s world scenario the construction industry has a great demand as the construction industry has become a fundamental part of a country’s framework and mechanical growth and development. As the tall building, multidwelling are rising throughout the world day by day with the advance construction technology and computer skilled knowledge such as applying various software, but still fail in efficient and effective project management. The project management is an art and mission of preparing, organising and directing human effort to control the forces and use the materials of nature for the requirement of human growth. Today every constructional project is facing with extension of time in completion of project. This may be due to various problems but first and foremost basic problem is due to not efficient planning. The task of finishing the project on time itself is a big deal in construction industry, however there have been a few methodologies and systems built up for effective and powerful project management.

It is essential to have a good comprehension of project for upgrading the productivity and getting better the quality and nature of work. Planning is something advance thinking, what to do, how to do, where to do, the approximate resource required and number of days to complete particular task in construction project. This project ensures a case study on a residential apartment, where analysis has been done using primavera software p6. An efficient and effective planning and scheduling using primavera software helps to effective control and monitor the progress of work by surveying and reconstructing under a few changes so that the work runs hand in hand with the estimated time and budget. The necessity of planning is to develop a model that allows predicting the activities and resources that are critical for in time completion of the project. The main intension of planning is to ensure all activities and resource are managed and the project is delivered both “on time” and “within budget”.

1.1. Advantages of planning
- Planning helps to reduce
- Delays in project work
- Avoid over budget
- Avoid confusions
- Ensures systematic work

According to PMBOK guide fifth edition the term project is something impermanent attempts which are taken to create a desired and unique destination, goal or result. A construction project includes multi skill technology and various wide ranges of activities are related. These skill changes with type of project nature of job and mentality of contractor. For any kind of construction works the five processes are same right from estimating, planning, accounting and controlling and need to reach the goal effectively, so to maintain such time schedule as per planned construction processes have employed new tool and techniques in project management. We have software like primavera and MSP which are efficiently used in project management now days

2. ABOUT PRIMAVERA

Oracle primavera p6 is also known as EPPM which is abbreviated as enterprise project portfolio management. It is also the most powerful strong and easy handling software and used solution for worldwide, organizing, planning, managing, and execute project, programs and portfolios. Primavera P6 software helps to achieve the maximum return on investments in project and progress. Primavera P6 gives a single solution for multi projects of any size. Primavera can handle the projects of large size according the persons need.

3. SCOPE OF PROJECT

Planning, scheduling of a project, since planning is base for all the process and one of the important by function which give the estimate idea of duration and cost of the project. Whereas schedule give an idea of updating of project that where it stand by.

4. OBJECTIVES
- To plan and schedule project with all basic relationship using primavera p6.
3. PLANNING, SCHEDULING AND TRACKING

3.1 Project management
Project management is a tool of an art and knowledge where application of understanding, skill, tool and technique are implemented on the project tasks to succeed with the project require and destination. Project management deals with

- Identifying various requirements from stakeholder.
- Address needs, concern and expectation of stakeholder.
- Set up, manage and carry out active, effective, and valuable communication.
- Recognize and adjust finishing project limitations.

Project management institute (PMI) is main worldwide relationship for project management, which was established in 1969. PMBOK is the document for the best practice on project management. These PMBOK is released by PMI and this PMBOK get revised once in four year. According to the PMBOK fifth edition the project management framework consist of five major project management process groups with 47 processes.

The five project management processes are

- Initiating
- Planning
- Execution
- Monitoring and controlling
- Closing

There are ten project management knowledge areas which are as follows

- Integration Management
- Scope Management
- Time Management & Cost Management
- Quality Management
- Human Resource Management
- Communication Management

- Risk Management
- Procurement Management
- Stakeholder Management.

3.2 Planning
The fundamental key function of management is planning. It involves charge out a future line of action, and decides in advance the generally suitable course of action for achievement of goal which is pre determined. It is advance thinking of task with four “W” & one “H” – what to do, when to do, where and how to do. Planning bridges and plasters the gap from where we are and where we need to be. Future course of action is a perfect plan and is an exercise in dilemma solves and resolution making. It deals with purpose course of actions to accomplish considered necessary goals. If a plan is perfect then the way for accomplishment of pre determined goals is ready to serve magnificent for the world’s healthy use, systematic thinking about the ways of planning is necessary, because it helps in proper utilization of human and non human resource. Once a plan does justice for determined goal then, the society can avoid the side effects from the plan like wastages, confusions, uncertainties and risks. In order to avoid all these chaos it’s better to plan perfectly before the establishment of an unbiased goal. Objective of planning

- Minimize the time consumption
- Remove the uncertainty or minimize risk
- Reduce resource usage
- To improve the efficiency of operation
- To get better understanding of the what is our aim
- Give early warnings in case of potential problem
- Will take proactive, not reactive action
- Planning helps to reduce or avoid
- Over extension of project work or delay in project work
- Additional over cost or over budgeted
- Revenue loss
- Cost of inconveniencen
- Over long of time claims
- Over resource required

Since planning forms for basis for monitoring and controlling and also helps to create project scope, sequence activities that one by one, calculate the resource required for whole project, even calculate gross estimate budget plan of project

3.3 Scheduling
Scheduling is nothing but reflection of plan, that is determining the timing of task or activities in project when and which task will perform. In simple way planning deals with three basic words how, what, and who whereas scheduling deals with when and why. It is also defined as comprehensive plan of tasks in development work with respect to time. It is
also a better communication tool between all the stakeholders or people involved in project. It gives us over all snapshot of project with progress detail. It is very difficult to explain unskilled people about project like what is going on and what is expected to take place in future without schedule details. Since work environment becomes more complex day by day. It will be more pressure to deliver the suitable results within time and budget. So using advanced scheduling technique in primavera helps to

- Ensure work flows
- Giving importance to deliverables
- Can have better management meeting with different stakeholder
- Give idea to use resource in optimal way
- Can ensure proper management with documentation and control.

3.4 Tracking
Tracking is the one major phase in project management. It is a process of collecting all information regarding each task of the project and entering and analyzing the information collected to actual project which gives performance of project that is comparing actual duration with planned duration. Before the commencement of work the first thing to focus on project planning, when work progress gets starts the next and foremost phase in project management is tracking. Tracking mean collecting and reporting the details of project such as what is work done and by whom it is done, when it is done, how much cost it is required to complete. And these details are called actual project details. This actual detail is compared with planned details. This is useful in identifying the difference between planned and actual. Tracking helps us to know

- To understand project progress
- To take suitable action against work
- To provide documental information to stakeholders

4. SITE DETAILS

4.1 Introduction
Inland Edilon is the one of ongoing project of inland infrastructure developer pvt.ltd. Inland edilon is luxuries apartment with all amenities, increase their standard by style and live life of exclusivity. It is a residential building with three blocks, each block is G+4.

4.2 Salient features of the project
It is a G+4 residential building having 116 flats with all basic amenities such as 6 passenger capacity lifts
- Swimming pool
- CCTV facilities
- Gym in the ground floor of C Block
- Generator
- Intercom facility
- Children’s play ground
- Massage and steam room
- interior exercise instruction room
- wrap breathing space with scene
- Car parking

The various other general details are:
- Well framed RCC structure, walls are made with solid concrete block.
- Cement plastering is done on exterior as well as interior walls and even painted with exterior antifungal emulsion.
- Ceiling and internal walls are well putty finished
- Attractive and elegant melamine polished main entrance door
- Inside flooring is done with polished vitrified
- Windows are sliding type which are made up of UPVC/
- Aluminium
- Hard wooden frame and flush door are provided for internal doors Facilities such as over head tank and underground sump tank are provided to store water.
- BBWSSB water link and bore well are provided
- Switch of modular type

Location: 4th cross road, yelahanka Newtown, bangaluru, Karnataka 5600064 Each block description

4. METHODOLOGY

Research analysis are categorised into three stages. it is theoretical descriptions.
- Pre data collection or pre information collection
- Data collection or information collection
- Post data collection or post information collection

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion
This project of residential building inland edilon (G+4) is concluded as per planning, scheduling and tracking using earned value analysis with the following statement

As per planned
Project duration = 433 days it around one half year
Planned budget = Rs 380955795.38
After updating with day to day progress report up to 28th April 2017
Original duration = 503 days
Actual cost = 337053898.11 still the project is progressing
According to results obtained the project is still progressing and delays with around four month as per plan. Earned value analysis using tracking method up to updated date. The results obtained are as follow
Schedule variance = Rs 6035015.42 since it is positive number, this states that project ahead.
Cost variance = Rs 935,822.00 since it is negative number; this states that project is over budgeted. At present cost is Rs 337053898 and still it is estimated Rs 410525320.80 at completion. Performance index such as schedule index and cost index
Schedule performance index = 0.98 Hence it is less than 1, the project is behind the schedule Cost performance index =1 Hence it is equal to 1, the project is going within budgeted cost. From all this statement I concluded planning is a very important key function in any sector.

5.2 Recommendation
Collect the pre data details.

- Progress report must be maintained that is DPR (daily progress report)
- Keep regular inspection to site
- Strict measures should be taken so that the work is progressing as per proper planned in order to reduce risk.
- Pre planned order are necessary in case of materials required must be contracted with more than one vendor to lend materials as required as per plan, so that there won’t delay in progress of work
• Ensure to take suggestion from senior officers before taking any decision
• Tracking must be done at least once in month, so that to know the project status- where it is now? Whether it is going as per plan

6. ANNEXURE

Figure 1. Mass excavation

Figure 2. Levelling process

Figure 3. Column reinforcement

Figure 4. Reinforcement work

Figure 5. External Plasting

Figure 6. Overhead tank

Figure 7. Block work and curing

Figure 8. Front view of project Status 4.

7. REFERENCES


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