

Project Planning, Scheduling, Tracking and Cost Control – A Case Study for Residential (G+4) Building by Using Software Primavera P6

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Abstract- The construction industry has been rising speedily from the early days. One of the developments was planning, scheduling, tracking and costing by using software. Proper planning, scheduling, costing and application are the major constraint in construction industry. It is very essential in construction projects for reducing cost and controlling delays of the project. Noteworthy amounts of time, money, resources are washed out each year in a construction industry due to wrong planning and scheduling.

The software used for this study is Primavera P6, this tool is operates throughout from planning phase to scheduling of a project, it reduced gigantic quantity of paperwork. Make available good planning, proper management, acceptable flow of resources to a project cannot involuntarily achieve favored result. An alarming method must be present which can aware the team about its promising achievement and breakdown all over the project. Due to unseemly scheduling, irregular monitoring and controlling of ongoing activities huge amount of time and resources is wasted every year or we can in every construction projects. In the present work, study is carried out on residential (G+4) apartment. This study covers up the progression of planning, scheduling, tracking and controlling of activities..

Keywords- Planning; Scheduling; Tracking; Project Planning Software; Primavera.

1. INTRODUCTION

In this present situation, construction is being greater than before or we can say we are living in concrete jungle. With globalization the construction projects have turn into massive and complex. Unlike global association manages the constructions each day and which has turned into a most vital piece of business. In the older days the software were not used in construction schemes no proper planning or scheduling was part of constructional activities and projects are freely started by contractor and planning was done by tender. Now a day, architectural planning is done with the help of much software but for the starting there is not any accurate management was done which leads for the completion of work. Thus this effort is made to achieve exact method over the construction activities with the use of software. Primavera P6 is a progress computer built-in undertaking project management tool. As we know India is prosperous in construction industry so we should be well-known with tools like primavera which is greatly advance management tool with recorded data base ORACLE this tool is web measurable for modification in an any situation in management activities this tool work for multi project at a time can be monitor and control all the projects proper management is required with official recognition and this can be possible if we know primavera tool completely and accurately.

1.1. Project Planning

Generating the project plan is the first thing you should do when taking responsibility any kind of project. However, many people are unsuccessful to grab the value of a plan in saving time, money, and many problems. The project management methods of planning and scheduling are tools and strategy, which are used to figure the project. The concluding point of a construction project requires the sensible scheduling and allocation of on hand resources. Man power, money, equipment, and material are major project resources that compel close management concentration. The supply and availability of these resources close not often be taken approved because of seasonal shortages, labor quarrels, cash flow, and equipment collapse effecting demands, postponed deliveries, and a mass of related doubts.

1.2. Scheduling

Sub-headings should be typeset in boldface and capitalize the first letter of the first word only. Section number to be in boldface roman.

1.3. Cost Control

Cost overrun is the one the main challenge for construction industry. It occurs near about in every construction project and varies very much from project to project. So it is necessary to target the actual

causes of cost overruns in order to reduce the delays and rising cost in any construction project. Cost overrun is defined as excess of actual cost over budget. Cost overrun is also sometimes called cost escalation, cost increase or budget overrun. Cost overrun is defined as the change in contract sum separated by the original contract award amount. Construction projects endure from cost overruns due to a variety of factors.

1.4. Tracking

To know the project has been executed according to the planning, tracking has been takes place. Tracking helps to stick to the plan during execution. The tracking is the process of analyses the updated schedule whether the cost and units of the project are beyond or ahead or equal of the planning. Tracking is comes under the process of monitoring and controlling of the construction project. Tracking of the project can be done after updating the project by monitoring. If the project is deviated from the schedule or cost it can easily be identified and resolved.

- (1) Tracking of the construction projects involves following steps:
- (2) Collecting data of the Project from the Organization.
- (3) Entering the details of the Project in Primavera.
- (4) Monitoring the execution of the Project.
- (5) Entering the planned and the actual Cost
- (6) Tracking the Project
- (7) Forecasting the Project
Report and Conclusion

2. PRIMAVERA P6

Primavera P6 is project management software developed by Oracle. This software is mainly used for project management and helps the users to manage projects of any range. Primavera P6 handles large scale projects which are cloud based, and easy to use solution for worldwide planning, managing and executing project. Primavera gives project manager's and scheduler's opportunity to manage highly sophisticated and multifaceted projects. Primavera P6 is high end project management software which provides enterprise-wide solution. It helps in reducing costs, delivering the project on the projected time by streamlining and coordinating with the management level changes. This software optimizes the overall resources so that the project runs efficiently no matter how big the size of the project is. It is designed to manage a large number of projects at a time for an organization. By using Primavera P6, one can simultaneously plan major project strategies and control the minute details to finish the project.

3. OBJECTIVE OF STUDY

The objectives of this study are:

1. To identify construction sequence for a residential building construction.
2. To work out the practical durations required to carry out the activities.
3. To identify scheduling technique used by the organization in developing plan and scheduling.
4. To develop scheduling using Primavera project planner's software.
5. To track the project and analyze the reasons for delays, and increase in estimated budget etc.
6. To investigate defects in the planning and scheduling procedure of the organization, and suggest suitable improvements in their methods.

4. RESEARCH METHODOLOGY

Firstly data are taken from construction site to put in a software and study directly. For the research intention, (G+4) residential building apartment is taken as a case study.

The taken data will be explore in Primavera software, tracking of the project will be done and all the reports and results generated from the software will be studied and communications with the organization will be done on the subject of selection of the planning process and software to be used in their upcoming projects.

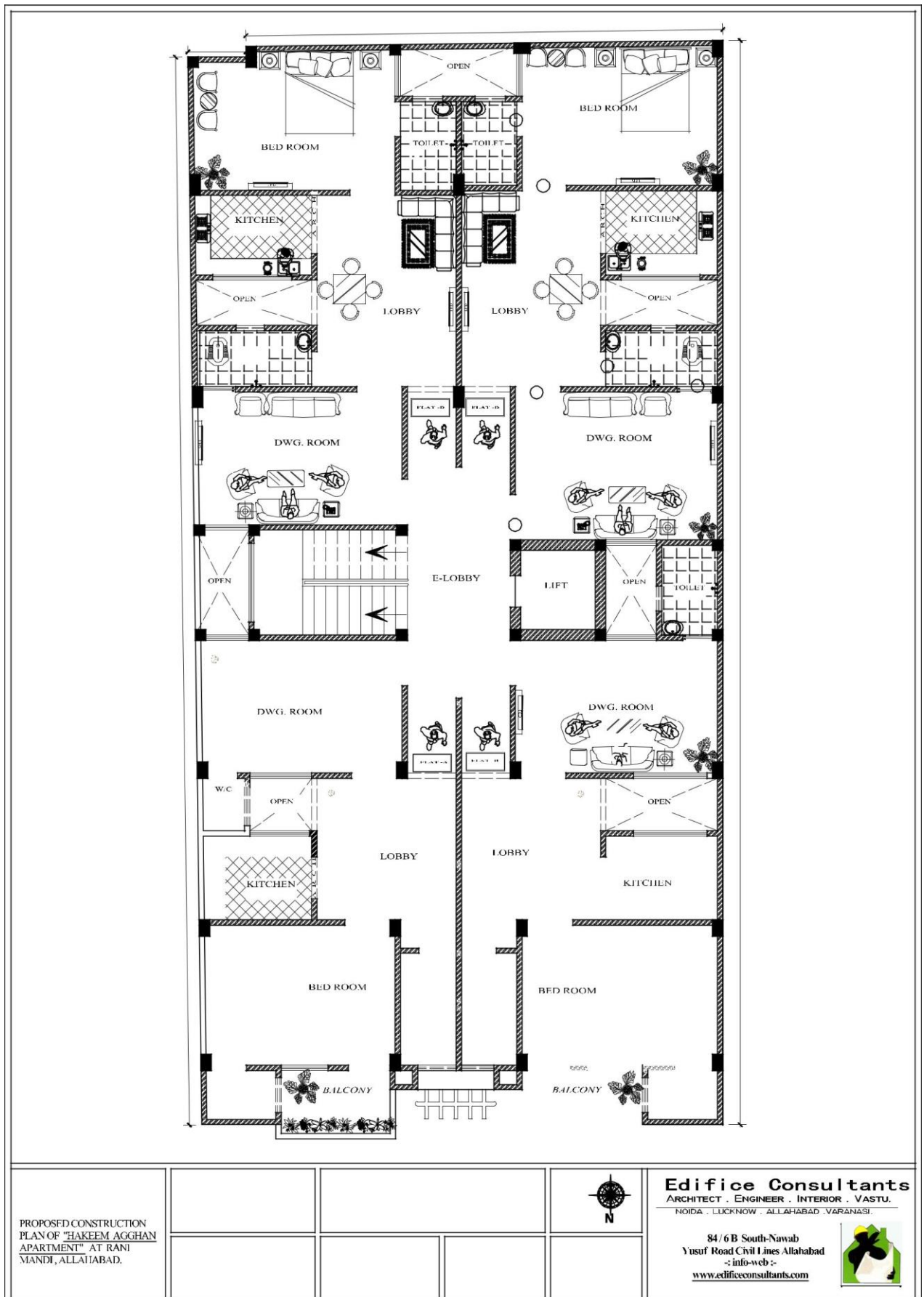
The data collection has been taken in three ways:

- Daily progress reports (DPR)
- Work output of labor
- Activities with their planned duration

4.1 Project Details:-

Project Name	Hakeem Aghghan Apartment
Type	G+4
Client	Mr. Abbas Raza
Builder	Mr. Aftab Ahmad
Site location	Ranimandi, Allahabad
Built up area	646 sq.ft.
Project duration	1 year

4.2 Project Plan:-



5. RESULTS & DISCUSSION

Daily progress reports:-

Below the DPR consist of in depth description of the work done, labor and resources. All the DPR from the first day of project till now have been collected.

EDIFICE CONSULTANTS						
NAME OF SITE: HAKEEM AGGHAN APARTMENT, AT RANIMANDI, ALLAHABAD						DATE: 23-11-2017
DAILY PROGRESS REPORT						
NO.	DESCRIPTION	QUANTITY	UNIT	LABOUR	NOS	
1	PLINTH BEAM SHUTTERING WORK IS COMPLETED.			MASON	0	
2	PLINTH BEAM SHUTTERING WORK IS CHECKED AS PER WORKING DRAWING.			MJC	7	
3	LIFT RAFT PARDI SHUTTERING WORK IN PROGRESS.			F/C	6	
4	CURING WORK FOR LIFT RAFT, FOOTING, STUB COLUMN COMPLETED.			SUPERVISOR	1	
5	FIRST SLAB COLUMN STEEL ERECTION WORK IN PROGRESS.			CARPENTER	3	
6	PLINTH BEAM STEEL ERECTION WORK IS COMPLETED.			HELPER	3	
7	PLINTH BEAM GROUND AREA COMPACTION WORK IN PROGRESS.			FITTER	3	
8	PLINTH BEAM STEEL CHECKED AS PER DRAWING.			HELPER	3	
9	B' BLDG. SIDE & BANDH SIDE BACKFILLING BY VCB. TIME 9:20 A.M. TO 12:50 P.M. & 2:00 P.M. TO 6:00 P.M.	7.3	HRS	SECURITY	1	
10	PLINTH BEAM CASTING WORK IS COMPLETED.	5.07	CUM	DEPART MJC	1	
11	VISITED TO ARCHITECT FOR DRAWING HE GAVE ONLY PLINTH BEAM WORKING DRAWING SOFT COPY.			DEPART F/C	0	
12	BIG BOLDER CONVERTED IN RUBBLE WORK IS COMPLETED	640	NOS	BOLDER MJC	2	
13	MYCEM COMPANY QC ENGINEER VISITED ON SITE & ONE TRIAL MIX CONCRETE 6 NOS. CUBE CASTED.					
MATERIAL	GRADE	BALANCE	CONSUMPTION	PLINTH BEAM		
CEMENT	53	430 BAGS	CEMENT	34	BAG	
		34 BAGS	CRUSHED SAND	92.11	CFT	
BALANCE		376 BAGS	20mm METAL	126.90	CFT	

Activities with their planned duration:-

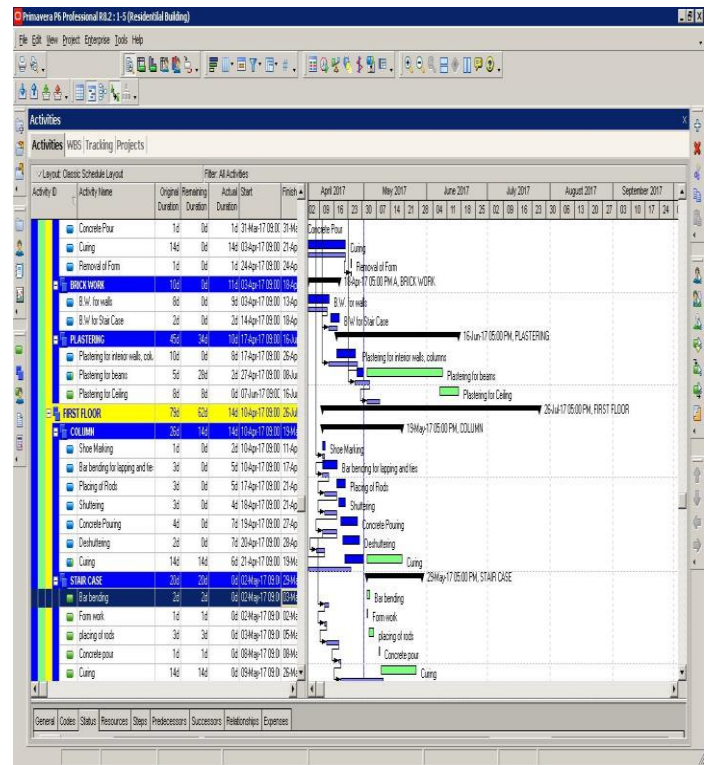


Fig (a) Updation of the Project

Work Output of labor:-

Work output is the quantity of work done by a labor in a day. It is used to compute duration necessary for activity based on the existing manpower on site.

Sr. No	Particular of Item	Quantity done per day by one person	
		M ²	M ³
1	Brickwork in Lime or Cement Mortar in Foundation Plinth		1.25
2	Brickwork in Lime or Cement Mortar in Super Structure		1
3	Coursed Rubble Stone masonry including dressing		0.8
4	Cement concrete	1:2:4	5
5	RCC Work		3
6	12 mm Cement Plaster	8	
7	White washing or Color washing	200	
8	Painting and Vanishing doors and windows (1coat)	25	
9	Painting Large surface (1 coat)	35	
10	Distempering (1coat)	35	

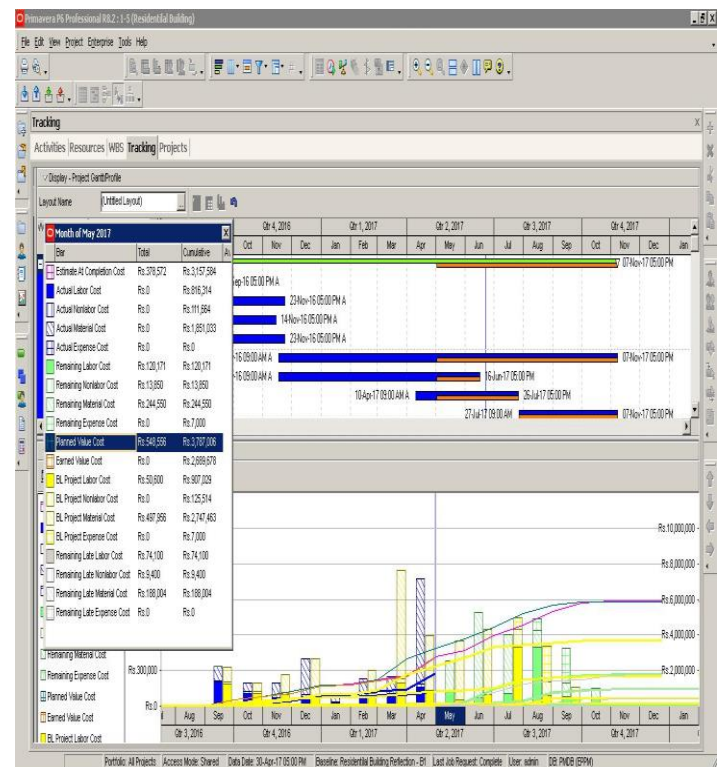


Fig (b) Tracking Cost of the Project

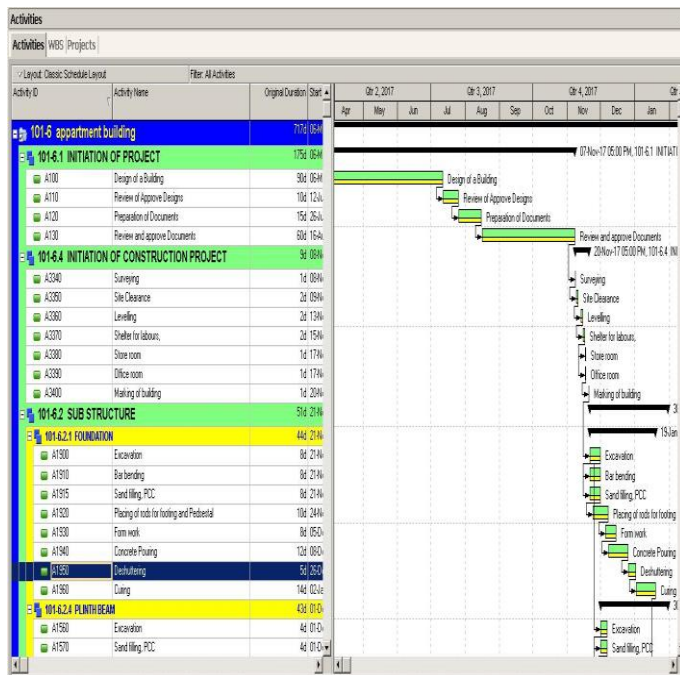


Fig (c) Scheduling of the apartment building

6. CONCLUSION

- Habitual monitoring of the work under implementation must be done at least within week in order to take sufficient actions against improbability.
- Primary baseline and Gantt chart created makes easy to recognize critical path and monitoring task against it improvement extremely easy by observing colors of bars.
- Carrying out review to view divergence in schedule helped and control against planned schedule is just piece of cake with this software.
- WBS helped to systematize, assemble and know the work achievement in percentage at every portions/nodes in it.
- Appropriate co-ordination and ease of statement of running of assignment.
- In this project by applying booming and fast tracking method duration of chosen events is compact to reschedule within the baseline.
- Using primavera technique of resource compulsion, compression of various activities is done by increasing working hours.
- Primavera (P6) proved to be a best tool for scheduling, monitoring and controlling and shows its effectiveness in only if best results with less attempt of user by preventing massive volume paperwork.

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CONCLUSION(A.1)