

Schedule Variation and Cost in Project Management

A Casestudy of Residential G+4 Apartment Bengaluru

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Abstract—The main objective of the project is to achieve the goal by completion of residential project of G+4 on time schedule where the project was set back for a month are so by improper planning and risk management later now reworking with new strategic planning of activity resources cash flow. Further the project is taken in a right direction and ahead of schedule by the help of management software primavera.

Keywords—Component; Formatting; Style; Styling; Insert (Key Words)

I. INTRODUCTION

In general a project is a designed set of interrelated activities to be accomplished over a fixed stipulated time and within certain budget and the relevance of data, abilities, tools and procedures to project events to meet up project scope is known as project management. But due to improper risk identification and management a project may tend to delay and exceed the budgeted cost. In order to determine the variation in the scheduled duration and cost. Consecutive arrangement of the planned events, representative durations with the early start and early finish dates for individual event is determined after the scheduling and overall cost for the resources required to complete the specified project is determined with the help of project planning management software primavera software p6.

II. EASE OF USE

A. Importance of Project management

Identifying requirements and managing the challenging demands for quality, ultimate output of project, duration and budgeting Adapting the detailed specifications, strategies, and approach to the different concerns and outlook of various shareholders.

B. Life Cycle of Project

It is broadly classified into two categories.

- Project Life Cycle Management
- Project Life Cycle
- Product life cycle Management (PLM)

It's a new age concept that has come into the venture primarily due to spurt in technological advancements over the past few years. PLM includes implementing technologies like Portfolio Management., Program Management and Product Data Management.

- Project life cycle for a Construction Project
 - ✓ Mobilization
 - ✓ Excavation
 - ✓ Foundation
 - ✓ Walling
 - ✓ Roofing
 - ✓ Plastering
 - ✓ Painting

C. Project Content

- Phase1: Forecasting, Scheduling, Resource Analysis and budgeting plan-(4M).
- Phase2: Communication, Updating Progress between Base plan and Actual performance.
- Scheduling
 - ✓ Forecasting events and relationship between predecessor and successor.
 - ✓ Preparing the Network Diagram. CPM, PERT, PDM
 - ✓ Forecasting the critical path to start the project duration as per schedule.
 - ✓ Assuming the project completion date.
- Resource Analysis
 - ✓ Men, Material, Machinery & facilities
 - ✓ Identifying over allocated resources
 - ✓ Analyzing resource over allocation, work done in hourly basis, resolving over allocation by leveling resources, exercising better control over distribution of resources
- Cost Estimation
 - ✓ Estimation of total project cost prior to execution of the project.
 - ✓ Including various cost factors Fixed cost, baseline cost, actual cost etc.,
- Tracking Project Progress
 - ✓ Editing the schedule based on project progress
 - ✓ Earned value analysis BCWP,ACWP,BCWS
 - ✓ Determining variances from the baseline plan i.e., schedule, cost variances
 - ✓ Analyzing Project performance.

- Monitoring & Report Generation
 - ✓ To capture, analyze and report project performance, usually as compared to plan.
 - ✓ Both tabular as well as graphical reports are used to monitor the project performance.

III. METHODOLOGY

A. Risk management

For Our Residential Project we have adopted the risk management method to assume project duration later sequencing it into order to find critical path also forecasting the cost variations to assume and what risk management is all about is as follows:

- Risk Identification
 - ✓ Literature of product and other forecasting scope and historic information related to project
 - ✓ To do list of flow chart interviewing
 - ✓ Identifying of risk management, prospective hazard tasks and risk indications effort to other development in project.
- Risk Quantification
 - ✓ Stake holder risk forbearance, cradles of risk, prospective risk tasks, inflation budget estimating activity durations
 - ✓ Anticipated financial price, statically quantities, decision hierarchy professional conclusion
 - ✓ Prospects to pursue threats, Chances to pay no attention to threats and accept.
- Risk Response Development
 - ✓ Prospects to pursue threats, Chances to pay no attention to threats and accept
 - ✓ Procurement ,critical planning, substitute tactics, insurance
 - ✓ Risk management plan, input to other plans, eventuality plans, inverse contractual deed.

B. Steps involved in progress of project by primavera

- Creating a New OBS: In an organization where top level management peoples designation is described under their professional experience is run into hierarchy level.

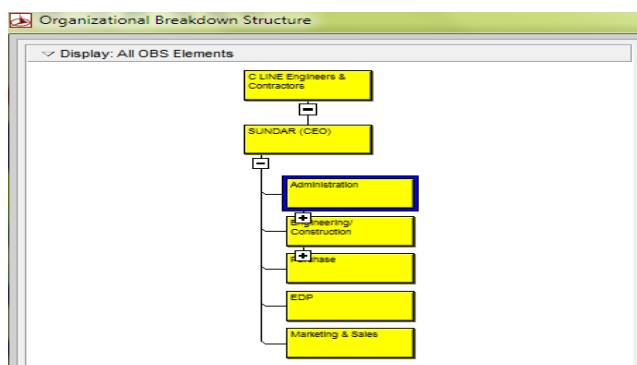


Fig -1: Organization breakdown structure.

- Creating a New EPS: The Enterprise Project Structure is centralized management of multiple projects

categorizes work in the organization, a hierarchical based structure that represents how projects are organized.

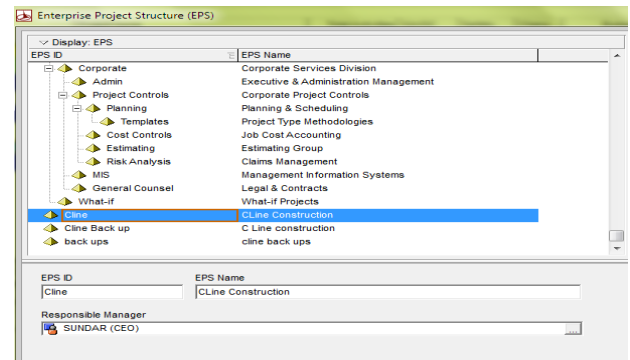


Fig -2: Enterprise project structure.

- Creating a WBS: The group of events and tasks in a project segregating or identifying into small work packages depending upon their merits is assigned in project.

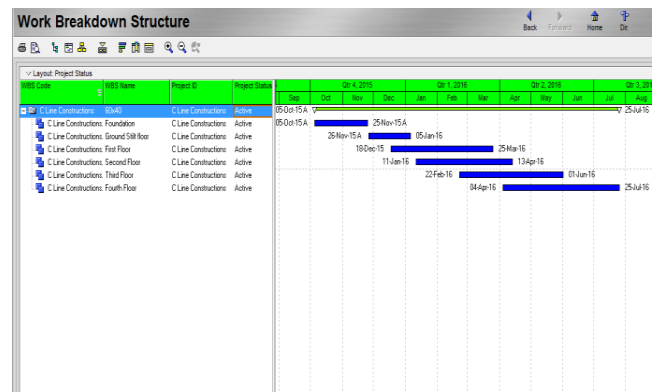


Fig -3: Work breakdown structure

- Creating calendars:
 - ✓ Creating a new calendar or Modify to edit an existing one.
 - ✓ Choosing the Calendar that we want to use as a template for new Projects.
 - ✓ Modify the Work Week add work/non-work days.
 - ✓ Check the "Default" Box to make the default Calendar for all future projects.

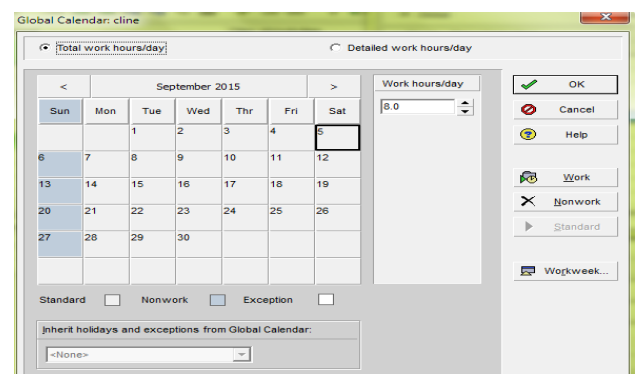
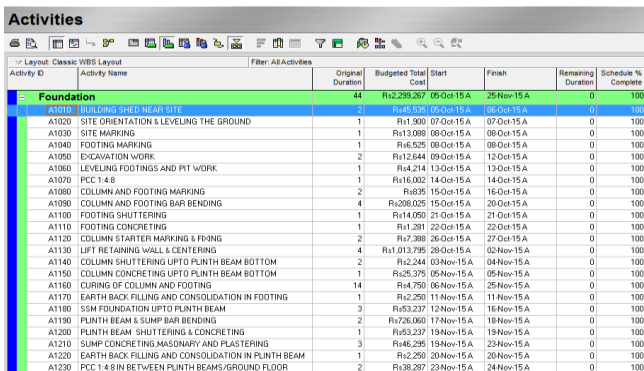


Fig -4: Assigning calendars

- **Adding Activities:** Activities are the primary work elements of project and they can further divided into steps. Activities are the lowest level of WBS.



Activity ID	Activity Name	Original Duration	Budgeted Total Cost	Start	Finish	Remaining Duration	Schedule % Complete
44	Foundation	44	Ru2,299,267	09-Oct-15A	29-Nov-15A	0	100%
A1000	BUILDING SHED NEAR SITE	1	Ru1,900	07-Oct-15A	07-Oct-15A	0	100%
A1001	SITE ORIENTATION & LEVELING THE GROUND	1	Ru13,088	08-Oct-15A	08-Oct-15A	0	100%
A1002	FOOTING MARKING	1	Ru12,644	09-Oct-15A	12-Oct-15A	0	100%
A1003	EXCAVATION WORK	1	Ru14,214	13-Oct-15A	13-Oct-15A	0	100%
A1004	LEVELING FOOTINGS AND PIT WORK	1	Ru16,002	14-Oct-15A	14-Oct-15A	0	100%
A1005	PCC 1:4:8	2	Ru699	15-Oct-15A	16-Oct-15A	0	100%
A1006	COLUMN AND FOOTING MARKING	4	Ru206,025	15-Oct-15A	20-Oct-15A	0	100%
A1007	COLUMN AND FOOTING BAR BENDING	1	Ru14,090	21-Oct-15A	21-Oct-15A	0	100%
A1008	FOOTING SHUTTERING	1	Ru1,281	22-Oct-15A	22-Oct-15A	0	100%
A1009	FOOTING CONCRETE	2	Ru2,380	26-Oct-15A	27-Oct-15A	0	100%
A1010	COLUMN STARTER MARKING & FIXING	4	Ru1,013,795	26-Oct-15A	02-Nov-15A	0	100%
A1011	LIFT RETAINING WALL & CENTERING	2	Ru2,244	03-Nov-15A	04-Nov-15A	0	100%
A1012	COLUMN SHUTTERING UPTO PLINTH BEAM BOTTOM	1	Ru25,375	05-Nov-15A	05-Nov-15A	0	100%
A1013	COLUMN CONCRETE UPTO PLINTH BEAM BOTTOM	14	Ru4,790	06-Nov-15A	25-Nov-15A	0	100%
A1014	CURING OF COLUMN AND FOOTING	1	Ru2,250	11-Nov-15A	11-Nov-15A	0	100%
A1015	EARTH BACK FILLING AND CONSOLIDATION IN FOOTING	3	Ru53,237	12-Nov-15A	16-Nov-15A	0	100%
A1016	55M FOUNDATION UPTO PLINTH BEAM	2	Ru726,960	17-Nov-15A	18-Nov-15A	0	100%
A1017	PLINTH BEAM SHUTTERING & CONCRETE	1	Ru53,237	19-Nov-15A	19-Nov-15A	0	100%
A1018	PLINTH BEAM CONCRETE	3	Ru46,295	19-Nov-15A	23-Nov-15A	0	100%
A1019	EARTH BACK FILLING AND CONSOLIDATION IN PLINTH BEAM	1	Ru2,250	20-Nov-15A	20-Nov-15A	0	100%
A1020	PCC 1:4:8 BETWEEN PLINTH BEAMS/GROUND FLOOR	2	Ru2,267	23-Nov-15A	24-Nov-15A	0	100%

Fig -5: Activities tool bar

- **Duration:**
It's the basis for estimating the selected activity's completion time which helps to determine whether the schedule, resource availability or cost are most important when updating activities.

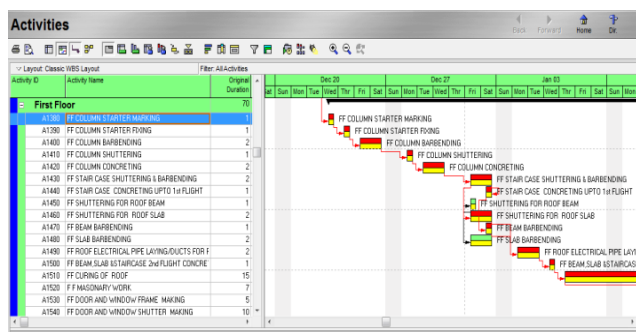


Fig -6: Duration

Table1. Planned Duration of Project Events

Events	Duration
Foundation	44 days
Ground stilt floor	37 days
First floor	58 days
Second floor	58days
Third floor	58 days
Fourth floor/Terrace	73 days

- **Assigning Activity logic Relationships:**
- ✓ Adding the "Relationships" tab.
- ✓ Assigning to add Predecessors / Successors.
- ✓ Selecting the Predecessor / Successor from the list.

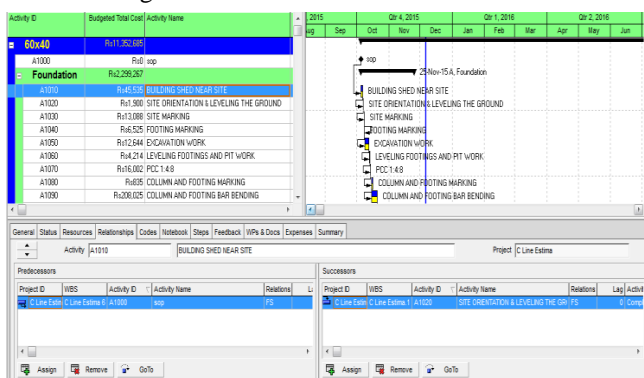


Fig -7: Assigning activity logic relationships

- **Scheduling:**
Its determination of timing of events in the project it also provides comparison of actual progress against plan and identifies deviations from the plan.

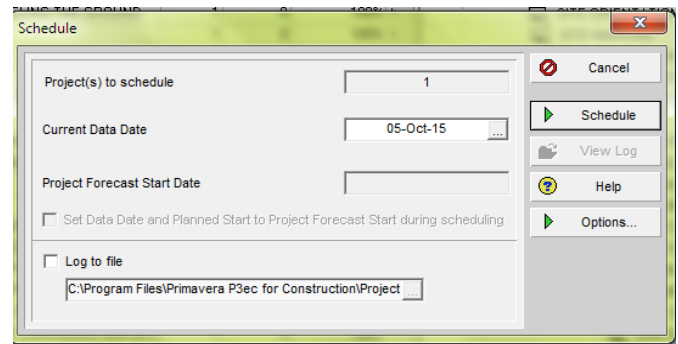


Fig -8: Scheduling

- **Resources:**
Assigning of generic resources to activities is to find out the total labour, material and equipment cost of the project.

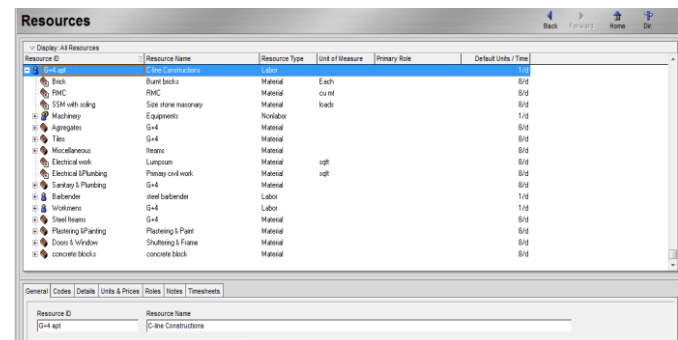


Fig -9: Assigning resources

- **Spreadsheet**
It provides the value of budgeted units based on the number of resource assigned to the particular activity and it display each and every day requirement of resources like labor, non labor, materials.

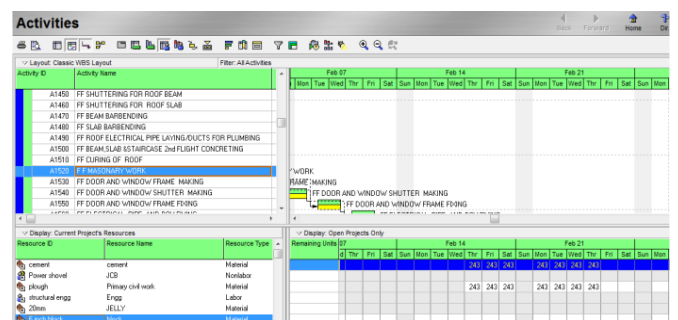


Fig -10: Spreadsheet.

- **Tracking**
It provides a summary of scheduled progress and cost and also enables to track actual progress i.e. physical progress in site against the baseline. It indicates whether project is on schedule or behind the schedule.

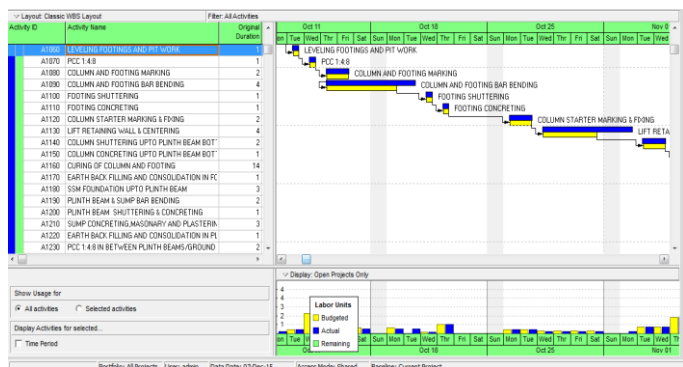


Fig -11: Tracking of the project.

• Reschedule

Identifying the delayed activities entering the actual percentage of complete to know the impact of delay to run the actual duration remains.

CONCLUSION

The Project has documented substantial differences in the Baseline plan of previous contractors and detailed further ongoing with analysis of the data collected, particularly the Resources of Labor Materials & Non Labor segregating each activity with help of risk management analysis related to the circumstance & Environment and to identify the delay in progress in each activity wise to know the physical percentage versus Actual work progressed The tracking features of Primavera P6 allowed to rapidly generate reports, ensure all project events are completed as requested, and maintain baseline adherence. Though already we have entered cost in variation in resources columns along with specified date so at the end we will get the cost variation to complete the residential Project. Additional strategies for solving the problems are identified & generated. Detailed and customized report of Work breakdown structure, to perform each and every day we have generated resources spread sheet to know what requirement of labor material & non labor and their cost.

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