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Planning, Scheduling, Budgeting and Tracking of a Multi-Storey Building Using Primavera P6

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***Abstract*: Effective project management helps in achieving the aim of the project. Numerous issues are being confronted by the construction business, major of them are cost and time overrun. In the present practice for construction there is less awareness about software which helps in smooth management of construction as compared to conventional way of handling the project. To reduce the complexity of construction project various tools like Primavera P6, M.S project are effective project software tools used for proper planning, scheduling and detailed cost estimation of various activities, resources involved in the project. In this present study we have planned and schedule G+20 residential building and allocated the needed resources and after that we got the estimated cost of the construction. We have also tracked the progress of the project at various intervals of time. This paper tries to explain how effective is to plan, schedule, to estimate budget and tracked the progress of a G+20 residential building using Primavera P6 software.**

***Keywords*: Planning, scheduling, cost estimation, budgeting, project management, Primavera P6.**

1. Introduction

The construction industry in developing countries like India even today as the market and competition are increasing but still many of the projects are being done using conventional methods and approach for the construction which have improper planning and management leads to time and cost overrun and different conflicts. Project management on the other hand seems to offer what is needed in terms of tools and techniques to raise industry standards. There is a lack of proper practice of project management prior to the start of the project in India.

Large building construction projects mainly includes various complex phases this project cross normal business hierarchies and chain of command making this projects and organizational wide challenge. The pressure to complete such projects on time and within budget is making project developers to implement project management process.

Planning is the process of identifying all the activities necessary to successfully complete the project. Scheduling is the process of determining the sequential order of the planned activities, assigning realistic durations to each activity and determining the start and finish dates of each activity. Budget is the estimated construction cost required for the completion of the particular project.

The objective of this study are:

1. Collect the data of the particular building for preparing the schedule and plan for the project.
2. To identify the scheduling techniques used for proper planning and scheduling.
3. To compute the practical durations required to carry out the activities and its correct sequence.

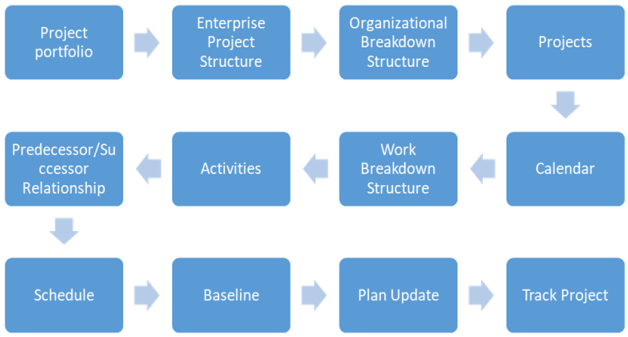

Fig. 1. CPM hierarchy

P6 EPPM also helps in:

1. Planning and scheduling
2. Optimizing organizational capacities and prioritizing projects
3. Portfolio management
4. Resource allocation, levelling and its management
5. Mitigating the risks and issues
6. Reporting and tracking the projects progress
7. Sound decision making and team collaborations
8. Reports on earned value performances

Rapid development of communications and computer technologies: After the 1970's, competitions in aerospace industry and demands for advanced technology by the Moon Landing project facilitated many technology breakthroughs on the hi-tech products. The first and second energy crises also led to evoke the environmental awareness and the concept of sustainable development. As a result, products which previously were limited in kind but huge in volume became more diversified and lesser in volumes to meet the requirements of energy efficiency, increased safety, and improved compatibility. As the technology became more popular and

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commercialized, hi-tech products were no longer elusive.

A. Problem Statement

In this project we are conducting an analysis on planning, scheduling and budgeting of a residential building (G+20) situated in Thane GB Road by using Primavera P6.

B. Scope

Planning: The planning stage is the preliminary stage of project management where there will be data collection along with the specifications that is stated to carry out smooth execution of the project.

Scheduling: Project is arranged in a proper work order which is drafted in Work Breakdown Structure (WBS) in Primavera P6. The list of activities is prepared and ordered properly with interrelationships. Duration of the project is determined along with the estimated cost of the project.

Budgeting: is the process of creating a plan to spend your money. This spending plan is called a budget. Creating this spending plan allows you to determine in advance whether you will have enough money to do the things you need to do or would like to do. Budgeting is simply balancing your expenses with your income.

Tracking: After the starting of project a track record of the project is taken with the help of Primavera P6 which helps in the tracking the actual completion of the project with the drafted timeline.

C. Objectives

1. To collect the data and specification of the urban building.
2. To make plan in AutoCAD and 3-D model in Revit.
3. Plan and schedule various activities in primavera p6 software.
4. Budget of the construction is found out.
5. Tracking and monitoring of the project.

2. Methodology

A. Planning

Construction planning is a fundamental and challenging activity in project management and execution of construction projects. It includes the selection of construction techniques, the definition of work task, the estimation of required durations and resources of individual task, and identify the interdependency between different work tasks. For this project Actual planning process starts with the collection of data like layout (Floor plan, section and elevation), project, start date, activities involved in the construction of a G+20 Residential building at Thane GB Road (has 1BHK with total 120 flats) equipped with modern technologies like Smart parking tower, Sewage treatment plant (STP) and solar panels. The activities sequences, duration taken, resources needed and its amount, cost spent for each and every activity.

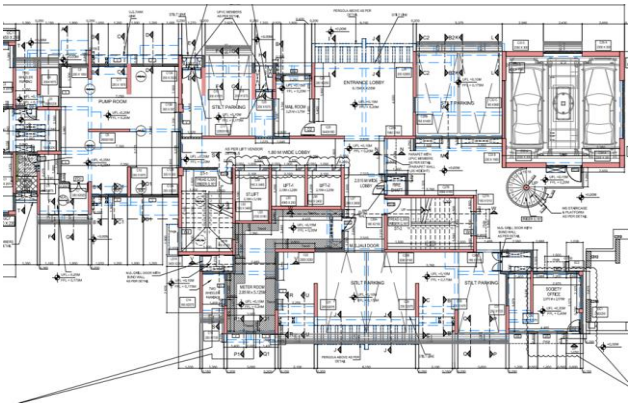


Fig. 2. Ground floor plan

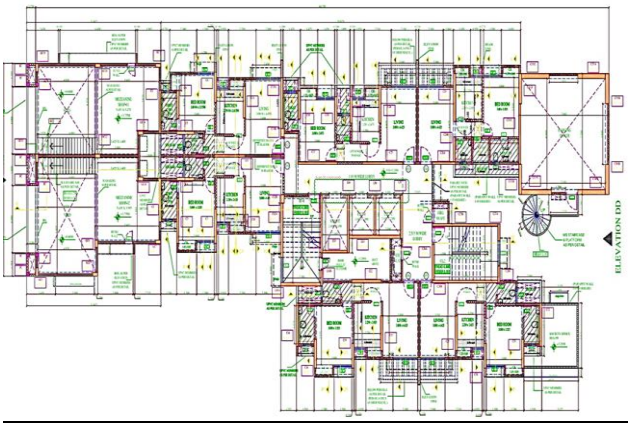


Fig. 3. Typical floor plan

Fig. 4. 3-D model

B. Scheduling of (G+20) Residential Building

Project Portfolio is a collection of projects where you can easily view data of more than one project at a time. It facilitates effective new product development and management of the projects by grouping the projects and programs together to optimize the organization or a project success. Project portfolio also allows reviewing the summary data and status information

of an organization or a project.

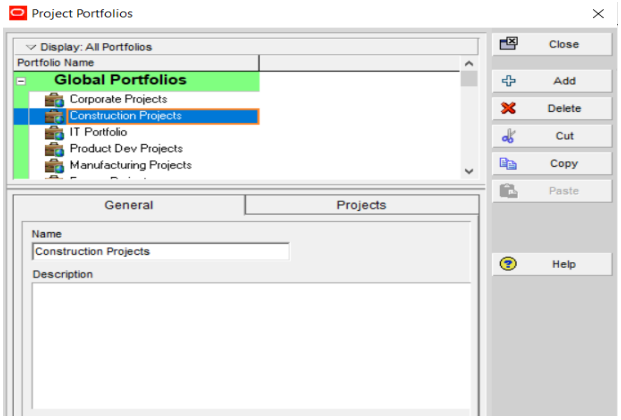


Fig. 5. Project portfolio

Enterprise Project Structure (EPS) represents the hierarchical structure of all projects in an organization. EPS will always occupy the highest level of the project management hierarchy. It can be subdivided into as many levels as needed to represent the entire work of an organization. The number of EPS levels or subsidiaries depends on the scope of the projects.

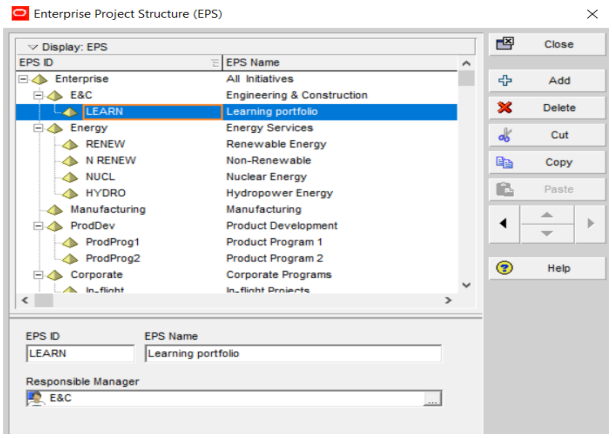


Fig. 6. Enterprise project Structure

Organizational Breakdown Structure (OBS) is a project organization framework for identification of responsibility, accountability, management and approvals of all authorized work scope.

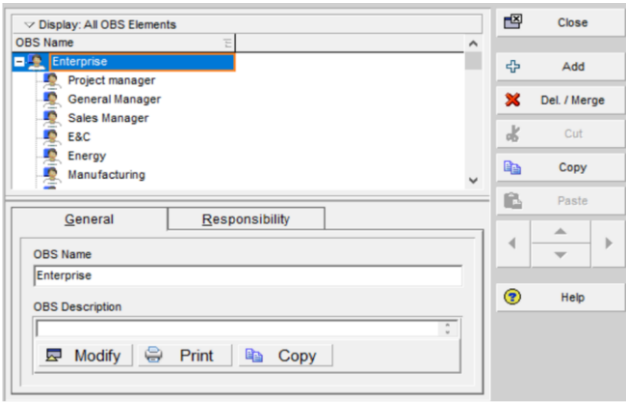


Fig. 7. Organizational breakdown structure

Projects is a series of activities, which are performed to create a service, product or a measurable business result in any organization. Project will have a definite beginning and end. A project is concluded in the hierarchy, when its objectives have been completed or is ended in between.

Fig. 8. Project

Calendar is assigned to both activities and resources where they are used for scheduling activities and levelling resources. The Primavera P6 supports three types of calendars namely Global calendar, Project calendar and Resource calendar. There is an option to assign two different calendars to activities and resources in a particular project.

In this project we have used 6-day Global calendar.

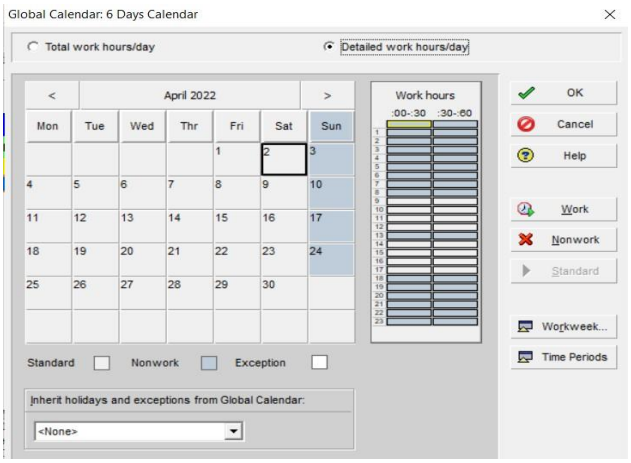


Fig. 9. Calendar

Work Breakdown Structure (WBS) is a chart in which the critical work elements called tasks of a project are illustrated to portray their relationships to each other and to the project as a whole. Creating WBS is the foremost step done by a project manager while creating a project.

Activities are the basic work elements of a project. An activity is also known as a task, item or event. These are the lowest level of manageable work elements in a project. Activities typically have estimated resources, costs and durations. However, milestone activities do not have any duration or cost.

Layout: WBS

WBS Code	WBS Name	Total Activities
RES BUILD	Residential urban building	281
RES BUILD.1	Documentation	8
RES BUILD.2	Acquisition of material and equipments	5
RES BUILD.3	Initiation	5
RES BUILD.4	Sub-structure	14
RES BUILD.5	Superstructure	188
RES BUILD.5.1	Ground floor	10
RES BUILD.5.1	Tower parking	3
RES BUILD.5.2	1st Floor	8
RES BUILD.5.2	Tower parking	3
RES BUILD.5.3	2nd Floor	8
RES BUILD.5.3	Tower parking	3
RES BUILD.5.4	3rd Floor	8
RES BUILD.5.4	Tower parking	3
RES BUILD.5.5	4th Floor	8
RES BUILD.5.5	Tower parking	3
RES BUILD.5.6	5th Floor	8
RES BUILD.5.6	Tower parking	3
RES BUILD.5.7	6th Floor	8
RES BUILD.5.7	Tower parking	3
RES BUILD.5.8	7th Floor	8
RES BUILD.5.8	Tower parking	3
RES BUILD.5.9	8th Floor	8
RES BUILD.5.9	Tower parking	3
RES BUILD.5.10	9th Floor	8
RES BUILD.5.10	Tower parking	3
RES BUILD.5.11	10th Floor	8
RES BUILD.5.11	Tower parking	3
RES BUILD.5.12	11th Floor	8
RES BUILD.5.12	Tower parking	3
RES BUILD.5.13	12th Floor	8
RES BUILD.5.13	Tower parking	3
RES BUILD.5.14	13th Floor	8
RES BUILD.5.14	Tower parking	3
RES BUILD.5.15	14th Floor	8
RES BUILD.5.15	Tower parking	3
RES BUILD.5.16	15th Floor	8
RES BUILD.5.16	Tower parking	3
RES BUILD.5.17	16th Floor	8
RES BUILD.5.17	Tower parking	3
RES BUILD.5.18	17th Floor	8
RES BUILD.5.18	Tower parking	3
RES BUILD.5.19	18th Floor	8
RES BUILD.5.19	Tower parking	3
RES BUILD.5.20	19th Floor	8
RES BUILD.5.20	Tower parking	3
RES BUILD.5.21	20th Floor	8
RES BUILD.5.21	Tower parking	3
RES BUILD.5.22	Terrace	18
RES BUILD.5.22	Tower parking	10
RES BUILD.6	Finishes works	11
RES BUILD.9	MEP Works	10
RES BUILD.9.1	Mechanical works	4
RES BUILD.9.2	Electrical works	4
RES BUILD.9.3	Plumbing works	2
RES BUILD.7	Sewage Treatement plant (STP)	6
RES BUILD.10	Commercial shops	29
RES BUILD.8	Project close out	5

Fig. 10. WBS

Layout: Classic Schedule Layout — Filter: All Activities

#	Activity ID	Activity Name	Budgeted Total Cost	Start	Finish	Remaining Duration	Original Duration	Critical	Schedule % Complete
1	Total		RS207,722,930.00	18-Nov-21 A	30-Mar-24	735d	736d		0%
2	Project: RES BUILD	Residential urba	RS207,722,930.00	18-Nov-21 A	30-Mar-24	735d	736d		0%
3	WBS: RES BUILD.1	Documentation	RS3,262,125.00	18-Nov-21 A	03-Jan-22	38d	38d		0%
4	A1000	Start of project	RS0.00	18-Nov-21 A		0d	0d	☐	0%
5	A1010	Construction contractor aggreement	RS777,000.00	19-Nov-21*	26-Nov-21	7d	7d	☑	0%
6	A1020	Architectural drawings	RS150,000.00	27-Nov-21	06-Dec-21	8d	8d	☑	0%
7	A1030	Specification	RS555,000.00	07-Dec-21	11-Dec-21	5d	5d	☐	0%
8	A1040	RCC drawings	RS240,000.00	07-Dec-21*	17-Dec-21	10d	10d	☑	0%
9	A1050	Work orders	RS666,000.00	18-Dec-21*	24-Dec-21	6d	6d	☑	0%
10	A1060	Clearance certificate	RS485,625.00	25-Dec-21*	29-Dec-21	4d	4d	☑	0%
11	A1070	Comencement certificate	RS388,500.00	30-Dec-21*	03-Jan-22	3d	3d	☑	0%
12	WBS: RES BUILD.2	Acquisition of material a	RS67,382,065.00	30-Dec-21	27-Jan-22	23d	23d		0%
13	A1080	Machinery	RS2,700,000.00	30-Dec-21*	13-Jan-22	12d	12d	☐	0%
14	A1090	Tools and plants	RS5,545,000.00	14-Jan-22*	18-Jan-22	4d	4d	☐	0%
15	A1100	Shuttering and Centering	RS24,040,170.00	19-Jan-22*	27-Jan-22	7d	7d	☐	0%
16	A1110	Steel	RS32,756,895.00	19-Jan-22*	22-Jan-22	4d	4d	☐	0%
17	A1380	Fixed Salary pesonals	RS2,340,000.00	24-Jan-22*	24-Jan-22	1d	1d	☐	0%
18	WBS: RES BUILD.3	Initiation	RS1,418,120.00	04-Jan-22	12-Jan-22	8d	8d		0%
19	A1120	Site cleaning	RS3,840.00	04-Jan-22*	04-Jan-22	1d	1d	☑	0%
20	A1130	Surveying and marking boundaries	RS27,600.00	05-Jan-22*	07-Jan-22	3d	3d	☑	0%
21	A1140	Water and electricity arrangement	RS1,347,000.00	08-Jan-22	10-Jan-22	2d	2d	☐	0%
22	A1150	Labour camp setup	RS19,200.00	08-Jan-22	10-Jan-22	2d	2d	☑	0%
23	A1160	Site mobilization	RS20,480.00	11-Jan-22	12-Jan-22	2d	2d	☑	0%
24	WBS: RES BUILD.4	Sub-structure	RS1,449,520.00	13-Jan-22	31-Mar-22	66d	66d		0%
25	A1170	Excavation for foundation	RS271,200.00	13-Jan-22	24-Jan-22	10d	10d	☑	0%
26	A1180	PCC for foundation	RS20,480.00	25-Jan-22	27-Jan-22	2d	2d	☑	0%
27	A1190	RCC	RS75,600.00	28-Jan-22	10-Feb-22	12d	12d	☑	0%
28	A1200	Shuttering	RS120,000.00	11-Feb-22	17-Feb-22	6d	6d	☑	0%
29	A1210	Casting	RS20,480.00	18-Feb-22	19-Feb-22	2d	2d	☑	0%
30	A1220	Deshuttering	RS40,000.00	21-Feb-22	22-Feb-22	2d	2d	☑	0%
31	A1230	Backfilling	RS34,600.00	23-Feb-22	28-Feb-22	5d	5d	☑	0%
32	A1240	PCC for PB	RS10,240.00	01-Mar-22	01-Mar-22	1d	1d	☑	0%
33	A1250	RCC and shuttering of PB	RS225,200.00	02-Mar-22	15-Mar-22	12d	12d	☑	0%
34	A1260	Casting of PB	RS30,720.00	16-Mar-22	18-Mar-22	3d	3d	☑	0%
35	A1370	UG Tank casting	RS10,240.00	16-Mar-22	16-Mar-22	1d	1d	☐	0%
36	A1270	Backfilling and rubble soling	RS548,600.00	19-Mar-22	25-Mar-22	6d	6d	☑	0%
37	A1280	RCC and PCC	RS35,440.00	26-Mar-22	30-Mar-22	4d	4d	☑	0%
38	A1290	DPC	RS6,720.00	31-Mar-22	31-Mar-22	1d	1d	☑	0%

#	Activity ID	Activity Name	Budgeted Total Cost	Start	Finish	Remaining Duration	Original Duration	Critical	Schedule % Complete
39	WBS: RES BUILD.5	Superstructure	RS28,027,440.00	01-Apr-22	06-Nov-23	498d	498d		0%
40	WBS: RES BUILD.5.1	Ground floor	RS1,528,100.00	01-Apr-22	10-May-22	34d	34d		0%
41	A1300	RCC work	RS175,000.00	01-Apr-22	08-Apr-22	7d	7d	☑	0%
42	A1310	Shuttering	RS200,000.00	09-Apr-22	12-Apr-22	3d	3d	☑	0%
43	A1320	Casting	RS40,000.00	13-Apr-22	14-Apr-22	2d	2d	☑	0%
44	A1330	Deshuttering	RS65,000.00	15-Apr-22	16-Apr-22	2d	2d	☑	0%
45	A1340	Shuttering and RCC for slab and be	RS815,000.00	18-Apr-22	04-May-22	15d	15d	☑	0%
46	A1350	Casting	RS44,800.00	05-May-22	06-May-22	2d	2d	☑	0%
47	A1360	Desuttering	RS80,000.00	07-May-22	10-May-22	3d	3d	☑	0%
48	WBS: RES BUILD.5.1.1	Tower parking	RS108,300.00	18-Apr-22	07-May-22	18d	18d		0%
49	A1400	RCC work And shuttering	RS67,500.00	18-Apr-22	20-Apr-22	3d	3d	☐	0%
50	A1410	Casting	RS20,800.00	05-May-22	05-May-22	1d	1d	☐	0%
51	A1480	Deshuttering	RS20,000.00	07-May-22	07-May-22	1d	1d	☑	0%
52	WBS: RES BUILD.5.2	1st Floor	RS1,304,300.00	09-May-22	29-Jun-22	45d	45d		0%
53	A1390	Laying RCC	RS315,000.00	09-May-22	11-May-22	3d	3d	☑	0%
54	A1420	Erection of Aluminium formwork	RS500,000.00	12-May-22	22-Jun-22	36d	36d	☑	0%
55	A1430	Laying of RCC Slab	RS217,000.00	23-Jun-22	24-Jun-22	2d	2d	☑	0%
56	A1440	Casting of whole floor	RS84,000.00	25-Jun-22	27-Jun-22	2d	2d	☑	0%
57	A1450	Deshuttering	RS80,000.00	28-Jun-22	29-Jun-22	2d	2d	☑	0%
58	WBS: RES BUILD.5.2.1	Tower parking	RS108,300.00	12-May-22	28-Jun-22	41d	41d		0%
59	A1460	RCC work And shuttering	RS67,500.00	12-May-22	14-May-22	3d	3d	☐	0%
60	A1470	Casting	RS20,800.00	25-Jun-22	25-Jun-22	1d	1d	☐	0%
61	A1490	Deshuttering	RS20,000.00	28-Jun-22	28-Jun-22	1d	1d	☑	0%
62	WBS: RES BUILD.5.3	2nd Floor	RS1,304,300.00	29-Jun-22	05-Aug-22	33d	33d		0%
63	A1500	Laying RCC	RS315,000.00	29-Jun-22	01-Jul-22	3d	3d	☑	0%
64	A1510	Erection of Aluminium Formwork	RS500,000.00	02-Jul-22	29-Jul-22	24d	24d	☑	0%
65	A1520	Laying of RCC Slab	RS217,000.00	30-Jul-22	01-Aug-22	2d	2d	☑	0%
66	A1530	Casting of whole floor	RS84,000.00	02-Aug-22	03-Aug-22	2d	2d	☑	0%
67	A1540	Deshuttering	RS80,000.00	04-Aug-22	05-Aug-22	2d	2d	☑	0%
68	WBS: RES BUILD.5.3.1	Tower parking	RS108,300.00	02-Jul-22	04-Aug-22	29d	29d		0%
69	A1550	RCC work And shuttering	RS67,500.00	02-Jul-22	05-Jul-22	3d	3d	☐	0%
70	A1560	Casting	RS20,800.00	02-Aug-22	02-Aug-22	1d	1d	☐	0%
71	A1570	Deshuttering	RS20,000.00	04-Aug-22	04-Aug-22	1d	1d	☑	0%
72	WBS: RES BUILD.5.4	3rd Floor	RS1,304,300.00	05-Aug-22	27-Aug-22	19d	19d		0%
73	A1580	Laying RCC	RS315,000.00	05-Aug-22	08-Aug-22	3d	3d	☑	0%
74	A1590	Erection of Aluminium Formwork	RS500,000.00	09-Aug-22	20-Aug-22	10d	10d	☑	0%
75	A1600	Laying of RCC slab	RS217,000.00	22-Aug-22	23-Aug-22	2d	2d	☑	0%
76	A1610	Casting of whole floor	RS84,000.00	24-Aug-22	25-Aug-22	2d	2d	☑	0%
77	A1620	Deshuttering	RS80,000.00	26-Aug-22	27-Aug-22	2d	2d	☑	0%
78	WBS: RES BUILD.5.4.1	Tower parking	RS108,300.00	09-Aug-22	26-Aug-22	15d	15d		0%
79	A1630	RCC work And shuttering	RS67,500.00	09-Aug-22	11-Aug-22	3d	3d	☐	0%
80	A1640	Casting	RS20,800.00	24-Aug-22	24-Aug-22	1d	1d	☐	0%
81	A1650	Deshuttering	RS20,000.00	26-Aug-22	26-Aug-22	1d	1d	☑	0%
82	WBS: RES BUILD.5.5	4th Floor	RS1,304,300.00	27-Aug-22	14-Sep-22	16d	16d		0%
83	A1660	Laying RCC	RS315,000.00	27-Aug-22	30-Aug-22	3d	3d	☑	0%
84	A1670	Erection of Aluminium Formwork	RS500,000.00	31-Aug-22	07-Sep-22	7d	7d	☑	0%
85	A1680	Laying of RCC slab	RS217,000.00	08-Sep-22	09-Sep-22	2d	2d	☑	0%
86	A1690	Casting of whole floor	RS84,000.00	10-Sep-22	12-Sep-22	2d	2d	☑	0%
87	A1700	Deshuttering	RS80,000.00	13-Sep-22	14-Sep-22	2d	2d	☑	0%
88	WBS: RES BUILD.5.5.1	Tower parking	RS108,300.00	31-Aug-22	13-Sep-22	12d	12d		0%
89	A1710	RCC work And shuttering	RS67,500.00	31-Aug-22	02-Sep-22	3d	3d	☐	0%
90	A1720	Casting	RS20,800.00	10-Sep-22	10-Sep-22	1d	1d	☐	0%
91	A1730	Deshuttering	RS20,000.00	13-Sep-22	13-Sep-22	1d	1d	☑	0%
92	WBS: RES BUILD.5.6	5th Floor	RS1,304,300.00	14-Sep-22	01-Oct-22	16d	16d		0%
93	A1740	Laying RCC	RS315,000.00	14-Sep-22	16-Sep-22	3d	3d	☑	0%
94	A1750	Erection of Aluminium Formwork	RS500,000.00	17-Sep-22	24-Sep-22	7d	7d	☑	0%
95	A1760	Laying of RCC slab	RS217,000.00	26-Sep-22	27-Sep-22	2d	2d	☑	0%
96	A1770	Casting of whole Floor	RS84,000.00	28-Sep-22	29-Sep-22	2d	2d	☑	0%
97	A1780	Deshuttering	RS80,000.00	30-Sep-22	01-Oct-22	2d	2d	☑	0%
98	WBS: RES BUILD.5.6.1	Tower parking	RS108,300.00	17-Sep-22	30-Sep-22	12d	12d		0%
99	A1790	RCC work And shuttering	RS67,500.00	17-Sep-22	20-Sep-22	3d	3d	☐	0%
100	A1800	Casting	RS20,800.00	28-Sep-22	28-Sep-22	1d	1d	☐	0%
101	A1810	Deshuttering	RS20,000.00	30-Sep-22	30-Sep-22	1d	1d	☑	0%
102	WBS: RES BUILD.5.7	6th Floor	RS1,304,300.00	01-Oct-22	19-Oct-22	16d	16d		0%
103	A1820	Laying RCC	RS315,000.00	01-Oct-22	04-Oct-22	3d	3d	☑	0%
104	A1830	Erection of Aluminium Formwork	RS500,000.00	05-Oct-22	12-Oct-22	7d	7d	☑	0%
105	A1840	Laying of RCC slab	RS217,000.00	13-Oct-22	14-Oct-22	2d	2d	☑	0%
106	A1850	Casting of whole floor	RS84,000.00	15-Oct-22	17-Oct-22	2d	2d	☑	0%
107	A1860	Deshuttering	RS80,000.00	18-Oct-22	19-Oct-22	2d	2d	☑	0%
108	WBS: RES BUILD.5.7.1	Tower parking	RS108,300.00	05-Oct-22	18-Oct-22	12d	12d		0%
109	A1870	RCC work And shuttering	RS67,500.00	05-Oct-22	07-Oct-22	3d	3d	☐	0%
110	A1880	Casting	RS20,800.00	15-Oct-22	15-Oct-22	1d	1d	☐	0%
111	A1890	Deshuttering	RS20,000.00	18-Oct-22	18-Oct-22	1d	1d	☑	0%
112	WBS: RES BUILD.5.8	7th Floor	RS1,304,300.00	19-Oct-22	05-Nov-22	16d	16d		0%
113	A1900	Laying RCC	RS315,000.00	19-Oct-22	21-Oct-22	3d	3d	☑	0%
114	A1910	Erection of Aluminium Formwork	RS500,000.00	22-Oct-22	29-Oct-22	7d	7d	☑	0%
115	A1920	Laying of RCC slab	RS217,000.00	31-Oct-22	01-Nov-22	2d	2d	☑	0%
116	A1930	Casting of whole floor	RS84,000.00	02-Nov-22	03-Nov-22	2d	2d	☑	0%
117	A1940	Deshuttering	RS80,000.00	04-Nov-22	05-Nov-22	2d	2d	☑	0%
118	WBS: RES BUILD.5.8.1	Tower parking	RS108,300.00	22-Oct-22	04-Nov-22	12d	12d		0%
119	A1950	RCC work And shuttering	RS67,500.00	22-Oct-22	25-Oct-22	3d	3d	☐	0%
120	A1960	Casting	RS20,800.00	02-Nov-22	02-Nov-22	1d	1d	☐	0%
121	A1970	Deshuttering	RS20,000.00	04-Nov-22	04-Nov-22	1d	1d	☑	0%
122	WBS: RES BUILD.5.9	8th Floor	RS1,304,300.00	05-Nov-22	23-Nov-22	16d	16d		0%
123	A1980	Laying RCC	RS315,000.00	05-Nov-22	08-Nov-22	3d	3d	☑	0%
124	A1990	Erection of Aluminium Formwork	RS500,000.00	09-Nov-22	16-Nov-22	7d	7d	☑	0%
125	A2000	Laying of RCC slab	RS217,000.00	17-Nov-22	18-Nov-22	2d	2d	☑	0%
126	A2010	Casting of whole floor	RS84,000.00	19-Nov-22	21-Nov-22	2d	2d	☑	0%
127	A2020	Deshuttering	RS80,000.00	22-Nov-22	23-Nov-22	2d	2d	☑	0%
128	WBS: RES BUILD.5.9.1	Tower parking	RS108,300.00	09-Nov-22	22-Nov-22	12d	12d		0%
129	A2030	RCC work And shuttering	RS67,500.00	09-Nov-22	11-Nov-22	3d	3d	☐	0%
130	A2040	Casting	RS20,800.00	19-Nov-22	19-Nov-22	1d	1d	☐	0%
131	A2050	Deshuttering	RS20,000.00	22-Nov-22	22-Nov-22	1d	1d	☐	0%
132	WBS: RES BUILD.5.10	9th Floor	RS1,304,300.00	24-Nov-22	12-Dec-22	16d	16d		0%
133	A2060	Laying RCC	RS315,000.00	24-Nov-22	26-Nov-22	3d	3d	☑	0%
134	A2070	Erection of Aluminium Formwork	RS500,000.00	28-Nov-22	05-Dec-22	7d	7d	☑	0%
135	A2080	Laying of RCC slab	RS217,000.00	06-Dec-22	07-Dec-22	2d	2d	☑	0%
136	A2090	Casting of whole floor	RS84,000.00	08-Dec-22	09-Dec-22	2d	2d	☑	0%
137	A2100	Deshuttering	RS80,000.00	10-Dec-22	12-Dec-22	2d	2d	☑	0%
138	WBS: RES BUILD.5.10.1	Tower parking	RS108,300.00	28-Nov-22	10-Dec-22	12d	12d		0%
139	A2110	RCC work And shuttering	RS67,500.00	28-Nov-22	30-Nov-22	3d	3d	☐	0%
140	A2120	Casting	RS20,800.00	08-Dec-22	08-Dec-22	1d	1d	☐	0%
141	A2130	Deshuttering	RS20,000.00	10-Dec-22	10-Dec-22	1d	1d	☑	0%
142	WBS: RES BUILD.5.11	10th Floor	RS1,304,300.00	12-Dec-22	29-Dec-22	16d	16d		0%
143	A2140	Laying RCC	RS315,000.00	12-Dec-22	14-Dec-22	3d	3d	☑	0%
144	A2150	Erection of Aluminium Formwork	RS500,000.00	15-Dec-22	22-Dec-22	7d	7d	☑	0%
145	A2160	Laying of RCC slab	RS217,000.00	23-Dec-22	24-Dec-22	2d	2d	☑	0%
146	A2170	Casting of whole floor	RS84,000.00	26-Dec-22	27-Dec-22	2d	2d	☑	0%
147	A2180	Deshuttering	RS80,000.00	28-Dec-22	29-Dec-22	2d	2d	☑	0%
148	WBS: RES BUILD.5.11.1	Tower parking	RS108,300.00	15-Dec-22	28-Dec-22	12d	12d		0%
149	A2190	RCC work And shuttering	RS67,500.00	15-Dec-22	17-Dec-22	3d	3d	☐	0%
150	A2200	Casting	RS20,800.00	26-Dec-22	26-Dec-22	1d	1d	☐	0%
151	A2210	Deshuttering	RS20,000.00	28-Dec-22	28-Dec-22	1d	1d	☑	0%
152	WBS: RES BUILD.5.12	11th Floor	RS1,304,300.00	29-Dec-22	16-Jan-23	16d	16d		0%
153	A2220	Laying RCC	RS315,000.00	29-Dec-22	31-Dec-22	3d	3d	☑	0%
154	A2230	Erection of Aluminium Formwork	RS500,000.00	02-Jan-23	09-Jan-23	7d	7d	☑	0%
155	A2240	Laying of RCC slab	RS217,000.00	10-Jan-23	11-Jan-23	2d	2d	☑	0%
156	A2250	Casting of whole floor	RS84,000.00	12-Jan-23	13-Jan-23	2d	2d	☑	0%
157	A2260	Deshuttering	RS80,000.00	14-Jan-23	16-Jan-23	2d	2d	☑	0%
158	WBS: RES BUILD.5.12.1	Tower parking	RS108,300.00	02-Jan-23	14-Jan-23	12d	12d		0%
159	A2270	RCC work And shuttering	RS67,500.00	02-Jan-23	04-Jan-23	3d	3d	☐	0%
160	A2280	Casting	RS20,800.00	12-Jan-23	12-Jan-23	1d	1d	☐	0%
161	A2290	Deshuttering	RS20,000.00	14-Jan-23	14-Jan-23	1d	1d	☑	0%
162	WBS: RES BUILD.5.13	12th Floor	RS1,304,300.00	16-Jan-23	03-Feb-23	16d	16d		0%
163	A2300	Laying RCC	RS315,000.00	16-Jan-23	18-Jan-23	3d	3d	☑	0%
164	A2310	Erection of Aluminium Formwork	RS500,000.00	19-Jan-23	27-Jan-23	7d	7d	☑	0%
165	A2320	Laying of RCC slab	RS217,000.00	28-Jan-23	30-Jan-23	2d	2d	☑	0%
166	A2330	Casting of whole Floor	RS84,000.00	31-Jan-23	01-Feb-23	2d	2d	☑	0%
167	A2340	Deshuttering	RS80,000.00	02-Feb-23	03-Feb-23	2d	2d	☑	0%
168	WBS: RES BUILD.5.13.1	Tower parking	RS108,300.00	19-Jan-23	02-Feb-23	12d	12d		0%
169	A2350	RCC work And shuttering	RS67,500.00	19-Jan-23	21-Jan-23	3d	3d	☐	0%

#	Activity ID	Activity Name	Budgeted Total Cost	Start	Finish	Remaining Duration	Original Duration	Critical	Schedule % Complete
170	A2360	Casting	RS20,800.00	31-Jan-23	31-Jan-23	1d	1d	☐	0%
171	A2370	Deshuttering	RS20,000.00	02-Feb-23	02-Feb-23	1d	1d	☑	0%
172	WBS: RES BUILD.5.14 13th Floor		RS1,304,300.00	03-Feb-23	21-Feb-23	16d	16d		0%
173	A2380	Laying RCC	RS315,000.00	03-Feb-23	06-Feb-23	3d	3d	☐	0%
174	A2390	Erection of Aluminium Formwork	RS500,000.00	07-Feb-23	14-Feb-23	7d	7d	☐	0%
175	A2400	Laying of RCC slab	RS217,000.00	15-Feb-23	16-Feb-23	2d	2d	☐	0%
176	A2410	Casting of whole Floor	RS84,000.00	17-Feb-23	18-Feb-23	2d	2d	☐	0%
177	A2420	Deshuttering	RS80,000.00	20-Feb-23	21-Feb-23	2d	2d	☐	0%
178	WBS: RES BUILD.5.14.1 Tower parking		RS108,300.00	07-Feb-23	20-Feb-23	12d	12d		0%
179	A2430	RCC work And shuttering	RS67,500.00	07-Feb-23	09-Feb-23	3d	3d	☐	0%
180	A2440	Casting	RS20,800.00	17-Feb-23	17-Feb-23	1d	1d	☐	0%
181	A2450	Deshuttering	RS20,000.00	20-Feb-23	20-Feb-23	1d	1d	☐	0%
182	WBS: RES BUILD.5.15 14th Floor		RS1,304,300.00	21-Feb-23	10-Mar-23	16d	16d		0%
183	A2460	Laying RCC	RS315,000.00	21-Feb-23	23-Feb-23	3d	3d	☐	0%
184	A2470	Erection of Aluminium Formwork	RS500,000.00	24-Feb-23	03-Mar-23	7d	7d	☐	0%
185	A2480	Laying of RCC slab	RS217,000.00	04-Mar-23	06-Mar-23	2d	2d	☐	0%
186	A2490	Casting of whole Floor	RS84,000.00	07-Mar-23	08-Mar-23	2d	2d	☐	0%
187	A2500	Deshuttering	RS80,000.00	09-Mar-23	10-Mar-23	2d	2d	☐	0%
188	WBS: RES BUILD.5.15.1 Tower parking		RS108,300.00	24-Feb-23	09-Mar-23	12d	12d		0%
189	A2510	RCC work And shuttering	RS67,500.00	24-Feb-23	27-Feb-23	3d	3d	☐	0%
190	A2520	Casting	RS20,800.00	07-Mar-23	07-Mar-23	1d	1d	☐	0%
191	A2530	Deshuttering	RS20,000.00	09-Mar-23	09-Mar-23	1d	1d	☐	0%
192	WBS: RES BUILD.5.16 15th Floor		RS1,304,300.00	10-Mar-23	28-Mar-23	16d	16d		0%
193	A2540	Laying RCC	RS315,000.00	10-Mar-23	13-Mar-23	3d	3d	☐	0%
194	A2550	Erection of Aluminium Formwork	RS500,000.00	14-Mar-23	21-Mar-23	7d	7d	☐	0%
195	A2560	Laying of RCC slab	RS217,000.00	22-Mar-23	23-Mar-23	2d	2d	☐	0%
196	A2570	Casting of whole floor	RS84,000.00	24-Mar-23	25-Mar-23	2d	2d	☐	0%
197	A2580	Deshuttering	RS80,000.00	27-Mar-23	28-Mar-23	2d	2d	☐	0%
198	WBS: RES BUILD.5.16.1 Tower parking		RS108,300.00	14-Mar-23	27-Mar-23	12d	12d		0%
199	A2590	RCC work And shuttering	RS67,500.00	14-Mar-23	16-Mar-23	3d	3d	☐	0%
200	A2600	Casting	RS20,800.00	24-Mar-23	24-Mar-23	1d	1d	☐	0%
201	A2610	Deshuttering	RS20,000.00	27-Mar-23	27-Mar-23	1d	1d	☐	0%
202	WBS: RES BUILD.5.17 16th Floor		RS1,304,300.00	28-Mar-23	14-Apr-23	16d	16d		0%
203	A2620	Laying RCC	RS315,000.00	28-Mar-23	30-Mar-23	3d	3d	☐	0%
204	A2630	Erection of Aluminium Formwork	RS500,000.00	31-Mar-23	07-Apr-23	7d	7d	☐	0%
205	A2640	Laying of RCC slab	RS217,000.00	08-Apr-23	10-Apr-23	2d	2d	☐	0%
206	A2650	Casting of whole floor	RS84,000.00	11-Apr-23	12-Apr-23	2d	2d	☐	0%
207	A2660	Deshuttering	RS80,000.00	13-Apr-23	14-Apr-23	2d	2d	☐	0%
208	WBS: RES BUILD.5.17.1 Tower parking		RS108,300.00	31-Mar-23	13-Apr-23	12d	12d		0%
209	A2670	RCC work And shuttering	RS67,500.00	31-Mar-23	03-Apr-23	3d	3d	☐	0%
210	A2680	Casting	RS20,800.00	11-Apr-23	11-Apr-23	1d	1d	☐	0%
211	A2690	Deshuttering	RS20,000.00	13-Apr-23	13-Apr-23	1d	1d	☐	0%
212	WBS: RES BUILD.5.18 17th Floor		RS1,304,300.00	14-Apr-23	02-May-23	16d	16d		0%
213	A2700	Laying RCC	RS315,000.00	14-Apr-23	17-Apr-23	3d	3d	☐	0%
214	A2710	Erection of Aluminium Formwork	RS500,000.00	18-Apr-23	25-Apr-23	7d	7d	☐	0%
215	A2720	Laying of RCC Slab	RS217,000.00	26-Apr-23	27-Apr-23	2d	2d	☐	0%
216	A2730	Casting of whole floor	RS84,000.00	28-Apr-23	29-Apr-23	2d	2d	☐	0%
217	A2740	Deshuttering	RS80,000.00	01-May-23	02-May-23	2d	2d	☐	0%
218	WBS: RES BUILD.5.18.1 Tower parking		RS108,300.00	18-Apr-23	01-May-23	12d	12d		0%
219	A2750	RCC work And shuttering	RS67,500.00	18-Apr-23	20-Apr-23	3d	3d	☐	0%
220	A2760	Casting	RS20,800.00	28-Apr-23	28-Apr-23	1d	1d	☐	0%
221	A2770	Deshuttering	RS20,000.00	01-May-23	01-May-23	1d	1d	☐	0%
222	WBS: RES BUILD.5.19 18th Floor		RS1,304,300.00	02-May-23	19-May-23	16d	16d		0%
223	A2780	Laying RCC	RS315,000.00	02-May-23	04-May-23	3d	3d	☐	0%
224	A2790	Erection of Aluminium Formwork	RS500,000.00	05-May-23	12-May-23	7d	7d	☐	0%
225	A2800	Laying of RCC Slab	RS217,000.00	13-May-23	15-May-23	2d	2d	☐	0%
226	A2810	Casting of whole floor	RS84,000.00	16-May-23	17-May-23	2d	2d	☐	0%
227	A2830	Deshuttering	RS80,000.00	18-May-23	19-May-23	2d	2d	☐	0%
228	WBS: RES BUILD.5.19.1 Tower parking		RS108,300.00	05-May-23	18-May-23	12d	12d		0%
229	A2820	RCC work And shuttering	RS67,500.00	05-May-23	08-May-23	3d	3d	☐	0%
230	A2840	Casting	RS20,800.00	16-May-23	16-May-23	1d	1d	☐	0%
231	A2850	Deshuttering	RS20,000.00	18-May-23	18-May-23	1d	1d	☐	0%
232	WBS: RES BUILD.5.20 19th Floor		RS1,304,300.00	19-May-23	05-Jun-23	16d	16d		0%
233	A2860	Laying RCC	RS315,000.00	19-May-23	22-May-23	3d	3d	☐	0%
234	A2870	Erection of Aluminium Formwork	RS500,000.00	23-May-23	30-May-23	7d	7d	☐	0%
235	A2880	Laying of RCC slab	RS217,000.00	31-May-23	01-Jun-23	2d	2d	☐	0%
236	A2890	Casting of whole floor	RS84,000.00	02-Jun-23	03-Jun-23	2d	2d	☐	0%
237	A2900	Deshuttering	RS80,000.00	05-Jun-23	06-Jun-23	2d	2d	☐	0%
238	WBS: RES BUILD.5.20.1 Tower parking		RS108,300.00	23-May-23	05-Jun-23	12d	12d		0%
239	A2910	RCC work And shuttering	RS67,500.00	23-May-23	25-May-23	3d	3d	☐	0%
240	A2920	Casting	RS20,800.00	02-Jun-23	02-Jun-23	1d	1d	☐	0%
241	A2930	Deshuttering	RS20,000.00	05-Jun-23	05-Jun-23	1d	1d	☐	0%
242	WBS: RES BUILD.5.21 20th Floor		RS1,304,300.00	06-Jun-23	23-Jun-23	16d	16d		0%
243	A2940	Laying RCC	RS315,000.00	06-Jun-23	08-Jun-23	3d	3d	☐	0%
244	A2950	Erection of Aluminium Formwork	RS500,000.00	09-Jun-23	16-Jun-23	7d	7d	☐	0%
245	A2960	Laying of RCC slab	RS217,000.00	17-Jun-23	19-Jun-23	2d	2d	☐	0%
246	A2970	Casting of whole floor	RS84,000.00	20-Jun-23	21-Jun-23	2d	2d	☐	0%
247	A2980	Deshuttering	RS80,000.00	22-Jun-23	23-Jun-23	2d	2d	☐	0%
248	WBS: RES BUILD.5.21.1 Tower parking		RS108,300.00	09-Jun-23	22-Jun-23	12d	12d		0%
249	A2990	RCC work And shuttering	RS67,500.00	09-Jun-23	12-Jun-23	3d	3d	☐	0%
250	A3000	Casting	RS20,800.00	20-Jun-23	20-Jun-23	1d	1d	☐	0%
251	A3010	Deshuttering	RS20,000.00	22-Jun-23	22-Jun-23	1d	1d	☐	0%
252	WBS: RES BUILD.5.22 Terrace		RS11,413,340.00	23-Jun-23	06-Nov-23	116d	116d		0%
253	A3020	RCC Laying	RS25,200.00	23-Jun-23	27-Jun-23	4d	4d	☐	0%
254	A3030	Shuttering	RS150,000.00	28-Jun-23	03-Jul-23	5d	5d	☐	0%
255	A3040	Casting for lift	RS10,240.00	04-Jul-23	04-Jul-23	1d	1d	☐	0%
256	A3050	RCC and Shuttering for OHT & LMR	RS87,600.00	05-Jul-23	08-Jul-23	4d	4d	☐	0%
257	A3060	Casting for OHT & LMR	RS17,760.00	10-Jul-23	10-Jul-23	1d	1d	☐	0%
258	A3070	RCC and shuttering for parapet wall	RS62,600.00	11-Jul-23	14-Jul-23	4d	4d	☐	0%
259	A3080	Casting	RS10,240.00	15-Jul-23	15-Jul-23	1d	1d	☐	0%
260	A3090	Deshuttering	RS80,000.00	17-Jul-23	22-Jul-23	6d	6d	☐	0%
261	WBS: RES BUILD.5.22.1 Tower parking		RS10,969,700.00	05-Jul-23	06-Nov-23	106d	106d		0%
262	A3100	RCC & Shuttering for columns	RS108,000.00	05-Jul-23	13-Jul-23	8d	8d	☐	0%
263	A3110	Casting	RS30,400.00	10-Jul-23	11-Jul-23	2d	2d	☐	0%
264	A3120	Deshuttering	RS30,000.00	17-Jul-23	18-Jul-23	2d	2d	☐	0%
265	A3130	RCC & Shuttering for slab 1	RS105,200.00	19-Jul-23	25-Jul-23	6d	6d	☐	0%
266	A3140	Casting	RS20,000.00	26-Jul-23	26-Jul-23	1d	1d	☐	0%
267	A3150	RCC & Shuttering for slab 2	RS105,200.00	27-Jul-23	03-Aug-23	7d	7d	☐	0%
268	A3160	Casting	RS20,000.00	04-Aug-23	04-Aug-23	1d	1d	☐	0%
269	A3170	RCC & Shuttering for slab 3	RS140,500.00	05-Aug-23	09-Aug-23	4d	4d	☐	0%
270	A3180	Casting	RS10,400.00	10-Aug-23	10-Aug-23	1d	1d	☐	0%
271	A3730	Installation of the spiral MS staircase	RS10,500,000.00	10-Aug-23	06-Nov-23	75d	75d	☐	0%
272	WBS: RES BUILD.6 Finishes works		RS25,135,330.00	14-Sep-22	09-Nov-23	360d	360d		0%
273	A3190	Blockwork for internal walls	RS4,246,100.00	14-Sep-22	16-Nov-22	55d	55d	☐	0%
274	A3210	Internal plastering	RS564,480.00	03-Feb-23	11-Mar-23	32d	32d	☑	0%
275	A3240	Skirting	RS650,000.00	13-Mar-23	27-Apr-23	40d	40d	☐	0%
276	A3250	Flooring	RS3,500,000.00	13-Mar-23	15-May-23	55d	55d	☑	0%
277	A3440	Internal Putty	RS5,000,000.00	16-May-23	21-Jul-23	58d	58d	☑	0%
278	A3230	Door and window frames	RS1,924,250.00	22-Jul-23	30-Sep-23	60d	60d	☐	0%
279	A3220	Staircase and duck finns	RS185,000.00	24-Jul-23	28-Aug-23	30d	30d	☐	0%
280	A3200	External chipping & grinding	RS1,200,000.00	11-Aug-23	09-Sep-23	25d	25d	☐	0%
281	A3420	Shower Test	RS80,000.00	11-Sep-23	27-Sep-23	15d	15d	☐	0%
282	A3430	External Putty	RS3,000,000.00	28-Sep-23	23-Oct-23	22d	22d	☐	0%
283	A3260	Painting	RS4,785,500.00	24-Oct-23	09-Nov-23	15d	15d	☐	0%

#	Activity ID	Activity Name	Budgeted Total Cost	Start	Finish	Remaining Duration	Original Duration	Critical	Schedule % Complete
305	WBS: RES BUILD.10 Commercial shops		RS641,730.00	29-Jul-23	25-Nov-23	102d	102d		0%
306	A3450	Excavation	RS24,000.00	29-Jul-23	31-Jul-23	2d	2d	☐	0%
307	A3460	Footing for foundation	RS13,200.00	01-Aug-23	02-Aug-23	2d	2d	☐	0%
308	A3470	Backfilling and levelling	RS16,000.00	03-Aug-23	07-Aug-23	4d	4d	☐	0%
309	A3480	PCC for Plinth Beam	RS2,880.00	08-Aug-23	08-Aug-23	1d	1d	☐	0%
310	A3490	RCC & Shuttering for Plinth Beam	RS61,000.00	09-Aug-23	16-Aug-23	6d	6d	☐	0%
311	A3500	Casting of plinth Beam	RS16,000.00	17-Aug-23	18-Aug-23	2d	2d	☐	0%
312	A3540	Deshuttering of Plinth Beam	RS4,000.00	19-Aug-23	19-Aug-23	1d	1d	☐	0%
313	A3510	Backfilling and soiling	RS196,000.00	21-Aug-23	26-Aug-23	6d	6d	☐	0%
314	A3520	RCC for Grid Slab	RS3,500.00	28-Aug-23	28-Aug-23	1d	1d	☐	0%
315	A3530	Casting for Grid Slab	RS6,400.00	29-Aug-23	29-Aug-23	1d	1d	☐	0%
316	A3550	RCC for columns	RS7,000.00	30-Aug-23	01-Sep-23	3d	3d	☐	0%
317	A3560	Shuttering for columns	RS12,000.00	02-Sep-23	07-Sep-23	5d	5d	☐	0%
318	A3570	Casting for columns & Deshuttering	RS8,000.00	08-Sep-23	09-Sep-23	2d	2d	☐	0%
319	A3580	Shuttering for beam & slab	RS5,000.00	11-Sep-23	16-Sep-23	6d	6d	☐	0%
320	A3590	RCC for beam & slab	RS4,200.00	18-Sep-23	20-Sep-23	3d	3d	☐	0%
321	A3600	Casting for beam & slab	RS2,400.00	21-Sep-23	21-Sep-23	1d	1d	☐	0%
322	A3610	Deshuttering of beam & slab	RS3,500.00	22-Sep-23	07-Oct-23	14d	14d	☐	0%
323	A3620	RCC for 1st floor columns	RS2,100.00	22-Sep-23	25-Sep-23	3d	3d	☐	0%
324	A3630	Shuttering for 1st floor columns	RS4,000.00	26-Sep-23	30-Sep-23	5d	5d	☐	0%
325	A3640	Casting for columns	RS1,600.00	02-Oct-23	02-Oct-23	1d	1d	☐	0%
326	A3650	Shuttering for beam & slab	RS15,000.00	03-Oct-23	16-Oct-23	12d	12d	☐	0%
327	A3660	Casting for beam & slab	RS2,400.00	17-Oct-23	17-Oct-23	1d	1d	☐	0%
328	A3670	Deshuttering	RS4,000.00	18-Oct-23	21-Oct-23	4d	4d	☐	0%
329	A3680	Blockwork for wall	RS12,800.00	23-Oct-23	04-Nov-23	12d	12d	☐	0%
330	A3690	Plastering work	RS7,750.00	06-Nov-23	13-Nov-23	7d	7d	☐	0%
331	A3700	Painting	RS105,000.00	14-Nov-23	18-Nov-23	5d	5d	☐	0%
332	A3710	M.S staircase	RS36,000.00	14-Nov-23	17-Nov-23	4d	4d	☐	0%
333	A3720	Shutter installation	RS16,000.00	18-Nov-23	20-Nov-23	2d	2d	☐	0%
334	A3780	Tiling	RS50,000.00	20-Nov-23	25-Nov-23	6d	6d	☐	0%
335	WBS: RES BUILD.8 Project close out		RS685,920.00	27-Nov-23	30-Dec-23	30d	30d		0%
336	A3400	Soling PCC for Ground	RS596,800.00	27-Nov-23	07-Dec-23	10d	10d	☐	0%
337	A3410	Coumpound wall	RS80,160.00	08-Dec-23	21-Dec-23	12d	12d	☐	0%
338	A3790	Security Cabin Installation	RS2,560.00	22-Dec-23*	22-Dec-23	1d	1d	☐	0%
339	A3800	Housekeeping	RS6,400.00	23-Dec-23*	23-Dec-23	1d	1d	☐	0%
340	A3810	Handing over to client	RS0.00	30-Dec-23*	30-Dec-23	1d	1d	☐	0%

Fig. 11. Activities

Predecessor/Successor Relationship

The four types of relationships in Primavera P6 include the following:

1. Finish to Start or FS Relationship: A successor activity cannot be started until a predecessor activity is finished.
2. Start to Start or SS Relationship: A successor activity cannot be started until a predecessor activity is started.
3. Finish to Finish or FF Relationship: A successor activity cannot be finished until a predecessor activity is finished.
4. Start to Finish or SF Relationship: A successor activity cannot be finished until a predecessor activity is started.

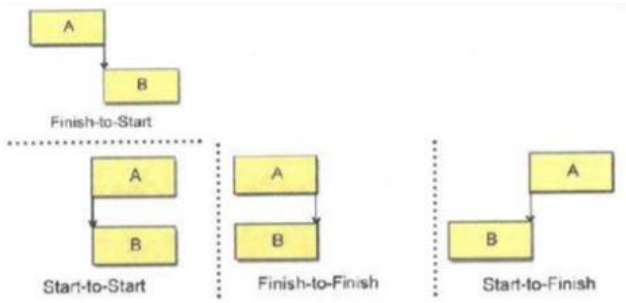
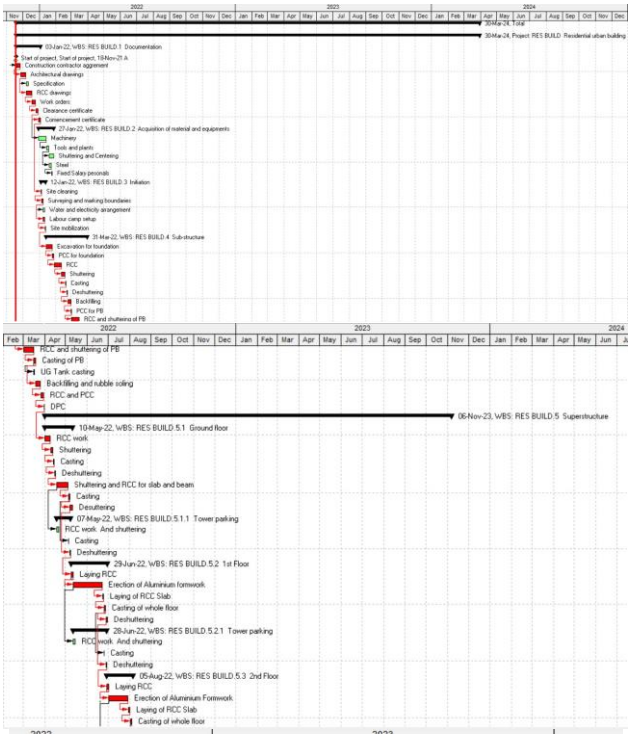
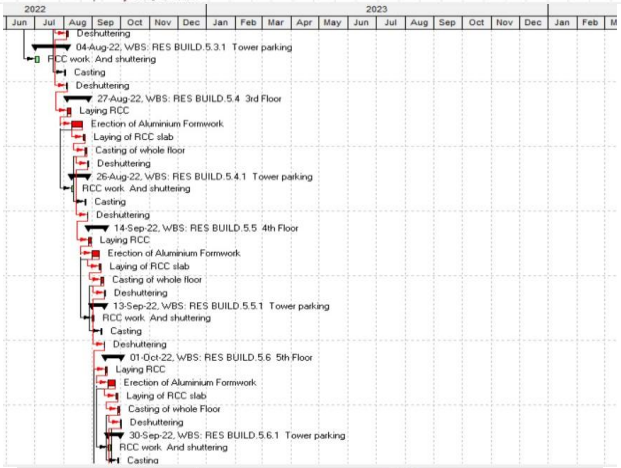
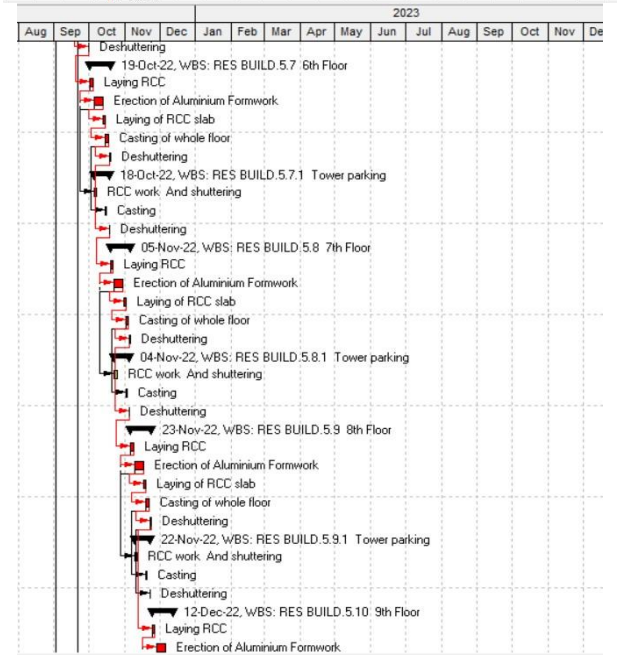


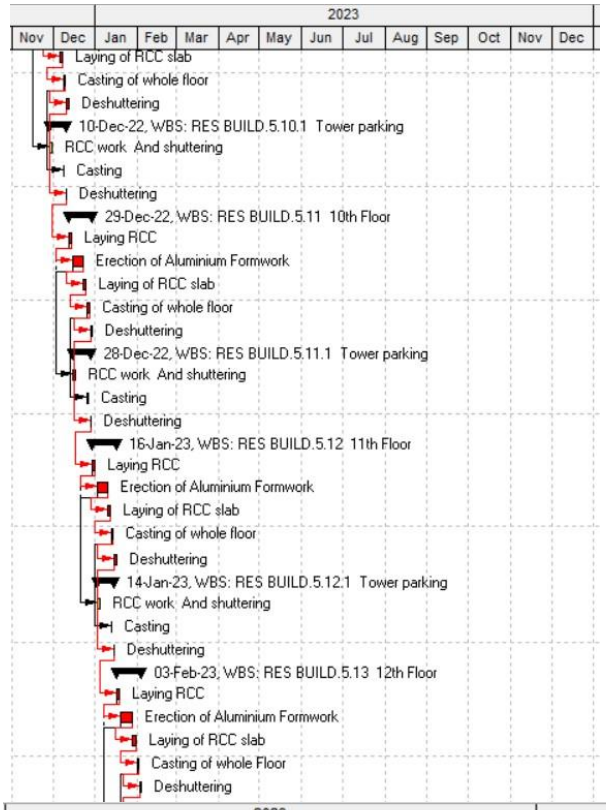
Fig. 12. Interdependency

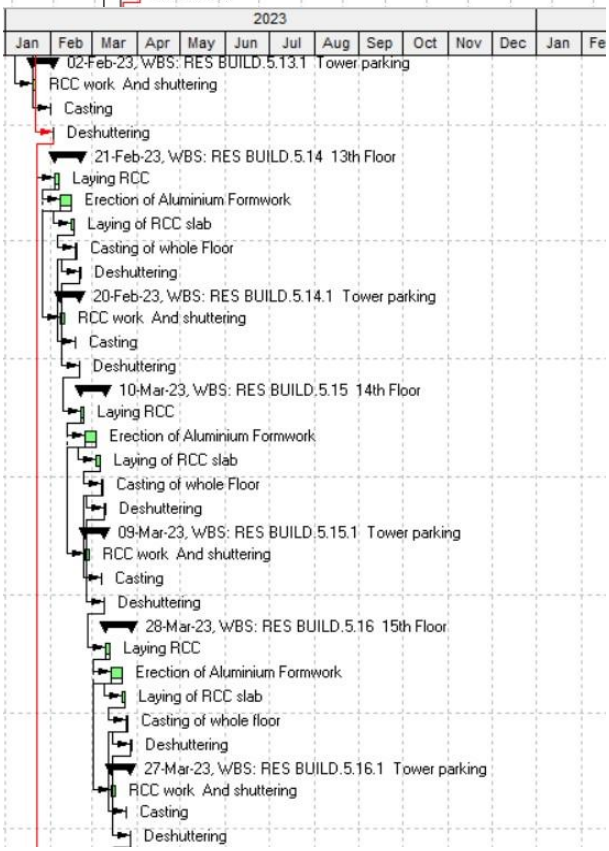
Gantt Chart is a type of bar chart that illustrate a project schedule. This chart lists the tasks to be performed on vertical axis and time on horizontal axis. The width of the horizontal bars in the graph shows the duration of each activity. Gantt charts shows the start and finish date of the activities.








2023
Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Laying of RCC slab
Casting of whole floor
Deshuttering
10-Dec-22, WBS: RES BUILD.5.10.1 Tower parking
RCC work And shuttering
Casting
Deshuttering
29-Dec-22, WBS: RES BUILD.5.11 10th Floor
Laying RCC
Erection of Aluminium Formwork
Laying of RCC slab
Casting of whole floor
Deshuttering
28-Dec-22, WBS: RES BUILD.5.11.1 Tower parking
RCC work And shuttering
Casting
Deshuttering
16-Jan-23, WBS: RES BUILD.5.12 11th Floor
Laying RCC
Erection of Aluminium Formwork
Laying of RCC slab
Casting of whole floor
Deshuttering
14-Jan-23, WBS: RES BUILD.5.12.1 Tower parking
RCC work And shuttering
Casting
Deshuttering
03-Feb-23, WBS: RES BUILD.5.13 12th Floor
Laying RCC
Erection of Aluminium Formwork
Laying of RCC slab
Casting of whole Floor
Deshuttering


2023
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Fe
02-Feb-23, WBS: RES BUILD.5.13.1 Tower parking
RCC work And shuttering
Casting
Deshuttering
21-Feb-23, WBS: RES BUILD.5.14 13th Floor
Laying RCC
Erection of Aluminium Formwork
Laying of RCC slab
Casting of whole Floor
Deshuttering
20-Feb-23, WBS: RES BUILD.5.14.1 Tower parking
RCC work And shuttering
Casting
Deshuttering
10-Mar-23, WBS: RES BUILD.5.15 14th Floor
Laying RCC
Erection of Aluminium Formwork
Laying of RCC slab
Casting of whole Floor
Deshuttering
09-Mar-23, WBS: RES BUILD.5.15.1 Tower parking
RCC work And shuttering
Casting
Deshuttering
28-Mar-23, WBS: RES BUILD.5.16 15th Floor
Laying RCC
Erection of Aluminium Formwork
Laying of RCC slab
Casting of whole floor
Deshuttering
27-Mar-23, WBS: RES BUILD.5.16.1 Tower parking
RCC work And shuttering
Casting
Deshuttering

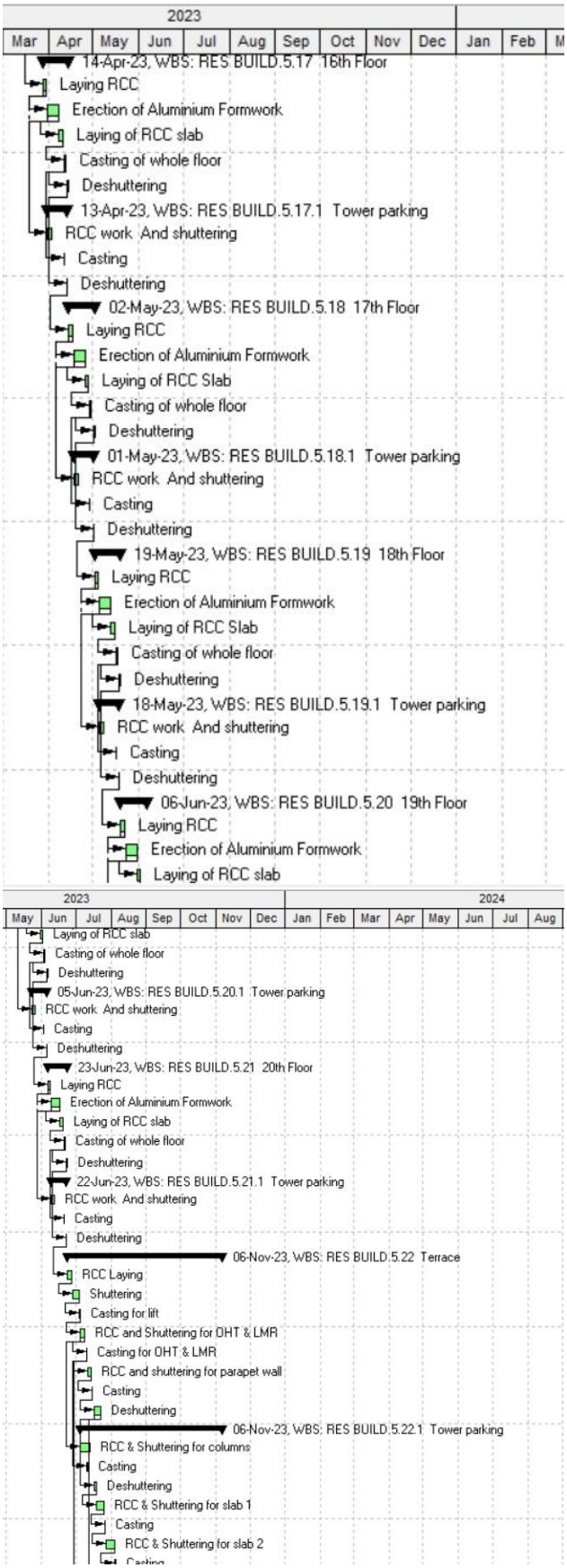


Fig. 13. Gantt Chart

Resource Creation to complete the activity there are requirements of various resources such as labor, equipment's, materials and machinery. So, we need to create different categories of resources with unit cost and hours of working.

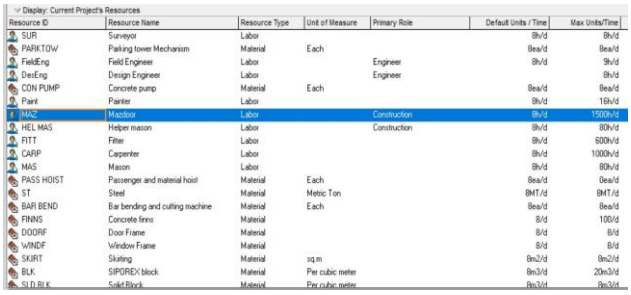


Fig. 14. Resources

*Resource Allocation for Activities***:** The created resources are then assigned to each and every activity with their respective need. After the resources are allocated the cost for the activity is calculated and the total cost is found out.

Schedule: Critical path methodology scheduling assigns dates to project activities, calculates project's finish date and also reveals the project's critical path.

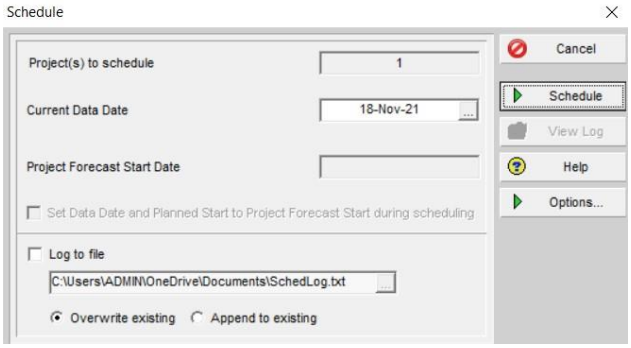


Fig. 15. Schedule

Resource Curve:

Resource/cost distribution curves enable you to specify how you want resource units or costs spread over the duration of an activity. Resource units and costs are distributed evenly from the assignment start to the assignment finish unless you specify a nonlinear distribution by assigning a curve. You can assign a resource distribution curve to any resource or role assignment on activities with a duration type of Fixed Duration and Units/Time or Fixed Duration & Units. Assign the appropriate curve to a resource or role assignment by selecting a curve in the Curve column in the Resource Assignments window. You can also assign a resource curve in the Resources tab in the Activity Details.

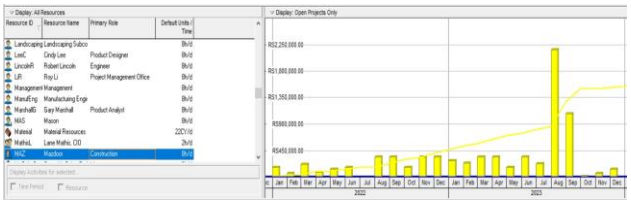


Fig. 16. Resource curve

Stacked Histogram:

Stacked Histograms are common sight in project environments. Primavera P6's stacked histogram stacks each bar on top of each other to give you a full view of your resourcing over time. The stacked histogram can graph either at Completion Units or at Completion Cost.

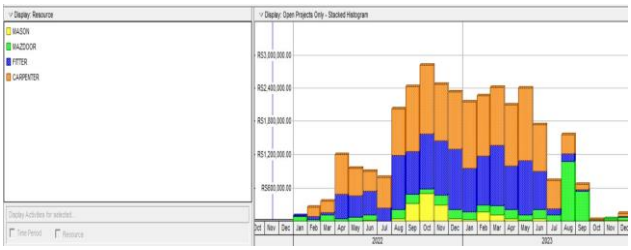


Fig. 17. Stacked Histogram

Tracking:

Project tracking is a project management method used to track the progress of tasks in a project. By tracking your project, you can compare actual to planned progress, and identify issues that may prevent the project from staying on schedule and within budget.

Project tracking helps project managers and stakeholders know what work has been done, the resources that have been used to execute those tasks, and helps them create an earned value analysis by measuring project variance and tracking milestones.

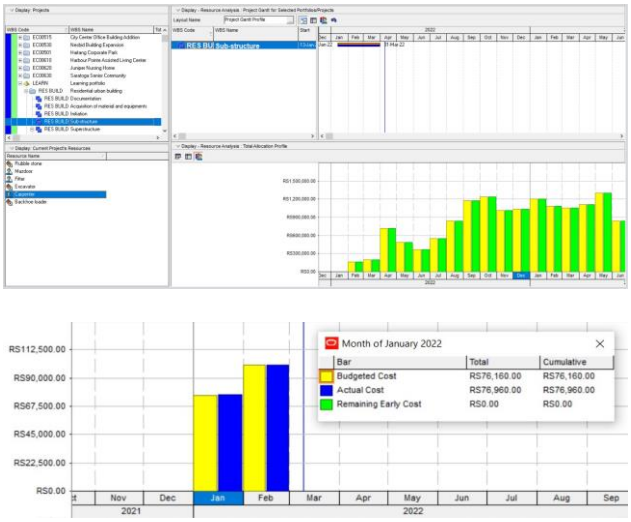


Fig. 18. Tracking

The yellow bar represents the budgeted cost of the months for resource name Mazdoor as the budgeted cost is found to be Rs 76,160/- and the bar which is created alongside in blue represents the actual cost which is spend for the activity which came about Rs 76,960/-. So, there is the difference between the two bars which can be easily tracked with the help of tracking option in Primavera.

3. Result

1) The project completion date according to the planned schedule is 15 Apr-2024.
2) Total Cost of Construction is ₹23,25,50,580.
3) Total duration of the project is 749 days.
4) Total of 281 activities are involved with this project from its initiation to delivery.
5) It shows the critical activities and path which helps to keep

more focus on them to avoid schedule and cost overrun.

6) It provides an idea of arranging the required resources for the upcoming activity.

4. Conclusion

The main goal and the mission of the study was to learn and analyze of Planning and Management of the residential building with timely accomplishment of any construction project. This helps to forecast the total duration of the project which was expected to be 749 days. The required resources for the completion of the project are known and at which stage the particular resource will be required is also known. In this study proved as an interpreting the progress of Puranik's Hometown building, which helps to recognize the various problems aroused during or prior the execution process. The output results of the current case study define the usefulness of efficient planning, Scheduling, Monitoring and Controlling. Primavera helps Project Manager to help him aware about the schedule with respect to the activities which are to be started or finished according to the schedule.

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