

Planning, Monitoring And Scheduling For Mid Rise Multi-Story Building Using Microsoft Project

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Abstract- *The efficient use of scheduling tools, such as Gantt charts, to plan and then provide progress reports within the project context is correlated with project planning, which is a crucial component of project management.*

The numerous challenges encountered throughout the project were also recognised and resolved. Additionally, the conventional method is time-consuming. With the aid of a case study of a project being carried out in India, the given work will provide them the chance to see the benefits of Microsoft Project (MSP), which expedites construction and makes the project cost-effective with proper planning. An examination of a high-rise residential building located in Bicholi Mardana, Indore (M.P.), was taken into consideration for the current project. Additionally, utilising the blueprints and drawings provided by the site officials, a detailed estimate was supplied. The project's overall length was determined, and Microsoft Project software was used to schedule the tasks and activities.

Keywords: Project Management, Scheduling, multi dwelling, construction management, project management software.

I. INTRODUCTION

What Indians are creating now is the future of their country, and the Indian goals, in conjunction with other tools and resources, will enable the country to shape its own destiny. Due to closures, occupation, and a lack of resources, India has suffered significantly in recent decades.

These and other problems have prevented Indian society from moving forward in the future and have slowed down many facets of civilisation. Nevertheless, in order to satisfy the expanding demands of the populace and to stay up with international advancements, commercial and residential construction projects are expanding quickly in India. In order to achieve the best outcomes and to help move in the right path to set future goals, construction needs to be thoroughly studied and prepared for if India is to advance in its construction projects. Mumbai's expanding population has rapidly increasing needs, which is keeping up with the city's population expansion. To accommodate their improved

lifestyles, people are looking for additional room. It should go without saying that accommodations are a fundamental necessity for any industry or individual. High-rise structures are the primary, both aesthetically and technically, answer to meet people's demands in this situation. From the standpoint of project management, one of the main causes of the issue is the absence of risk assessment. The Palais Royal in Lower Parel, Mumbai, for instance, is on hold because the risk was not evaluated and managed before building began. These days, high-rise buildings are among the most advanced constructions that are in demand. Normally, it is being worked on by every single construction business nowadays. India's limited construction history, coupled with a dearth of data and research, means that it lacks the technologies necessary for high-rise projects. By implementing consistent regulations, the RERA Act of 2016 has provided the construction industry with much-needed efficiency and openness. Since the RERA Act has been put into effect nationwide, developers are probably going to concentrate on completing their ongoing projects on time and continue to be more accommodating with regard to payment. Construction management is now considerably more important and necessary in the nation as a result of the RERA Act.

Objectives of the Research

- To reduce the total duration.
- To study the construction sequence of work for a multistorey G+11 RCC building situated in indore (M.P.)
- Planning and scheduling of residential building.
- To prepare a realistic schedule and set baseline.
- To implement the method on a building construction project as a schedule comparison technique
- Application of Microsoft project software in planning and scheduling of a multistorey RCC building.

Literature Review

The authors and researchers have implemented the utilization of construction management tools such as

primavera and Microsoft project in complex construction projects such as dams, high rise structure and other projects.

II. REVIEW OF LITERATURE SURVEY

Sahil Bhagat et.al (2025) The planning and scheduling of a residential construction project was the subject of a thorough case study, which was successfully carried out with Primavera P6 software. Role-based Primavera P6 functionality is used to meet the individual demands of each team member. With careful preparation, this ensured that everyone had access to the knowledge and resources they required to complete their tasks quickly. Optimising resource allocation and utilisation was made possible using Primavera P6 software. Utilising demand and capacity planning methods, researchers made sure that resources were employed effectively at every stage of the project.

Gulam Samdani et.al (2024) Presenting the apartment building's (G+5) construction schedule using Primavera P6 software was the aim of the study. For this project, the code referred to is IS 456-2000, and AutoCAD was used for the planning process. Starting on March 1, 2024, is the first and most important thing we may obtain by efficiently planning in Primavera. Primavera P6 significantly lowers the float and assists in efficiently scheduling the project by allocating two relationships at a time to each activity. This report demonstrates all the crucial procedures, such as developing an EPS, a WBS, connecting tasks based on their interdependencies, determining the critical path, and using available resources.

Make the project more economical by allocating the resources in a way that helps to cut down on the project's time and expense. Using Primavera P6 software, the project was finished effectively and with an awareness of appropriate scheduling.

Methodology

Microsoft Project's planning and scheduling technique for a mid-rise construction consists of a methodical set of processes intended to guarantee that the project is completed within the allotted 2547 days, from February 2, 2023, to June 3, 2028.

- Step 1- Defining Project Scope and Objectives**
- Step 2- Work Breakdown Structure (WBS) Development**
- Step 3- Activity Definition and Sequencing**
- Step 4- Time Estimation and Scheduling**
- Step 5- Resource Allocation**
- Step 6- Cost Estimation and Budgeting**

Step 7- Baseline Development

Step 8- Monitoring and Control

Step 9- Risk Assessment and Mitigation

Step 10- Reporting and Communication

Step 11- Project Closure and Evaluation

III. CASE STUDY

Table 1: Geometrical Specification

Geometrical Specification	
Particulars of Item	Properties
Number of Storey	G+11
Typical Storey height	3.2m
Bottom Storey Height	3.2m
Floor Diaphragm	Rigid
Number of Grid Lines in X-direction	4
Number of Grid Lines in Y-direction	4
Beam Size	400x250mm
Beam Shape	Rectangular
Column Size	450x450mm
Column Shape	Rectangular
Slab Depth	150mm
Slab Type	Thin Shell



Fig 1: Club Exotica Chugh Builders (Phase I)



Fig 2: Club Exotica Chugh Builders (Phase II)

IV. RESULTS AND DISCUSSION

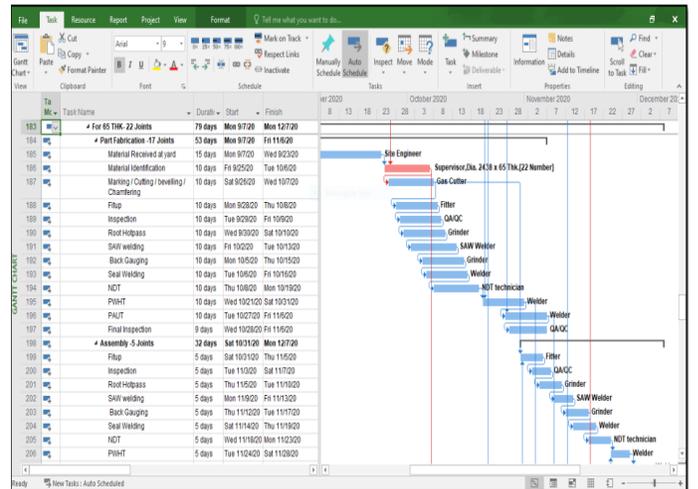
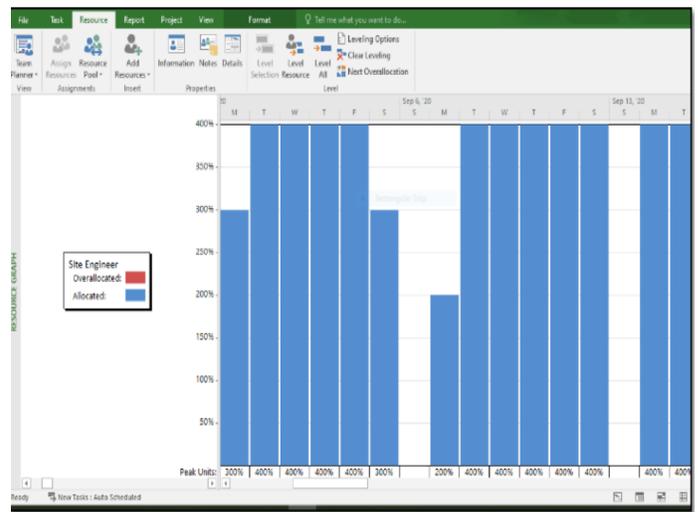


Fig 5: Scheduling

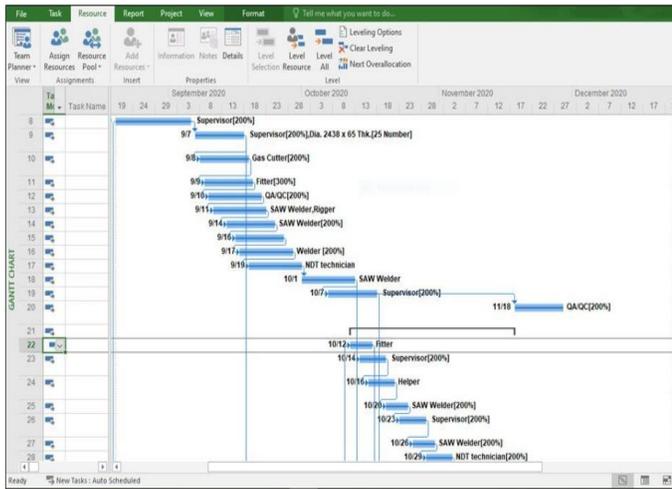


Fig 3: Resource graph before leveling

V. CONCLUSION

The inability of traditional planning techniques to divide huge projects into smaller ones leads to issues like future overspending and inefficient resource allocation. Microsoft Project may be able to ease the discomfort that comes with adhering to outdated planning and management techniques. Consequently, the project's operations might be more efficiently planned, providing the team with a better understanding of how to complete the task within the allocated budget and time frame. Our system leverages Microsoft Project (MSP), the most popular and successful construction management tool currently in use by all construction companies.

- Numerous tasks were completed in order to guarantee the project's success, including planning, scheduling, allocating resources, levelling, tracking, etc.

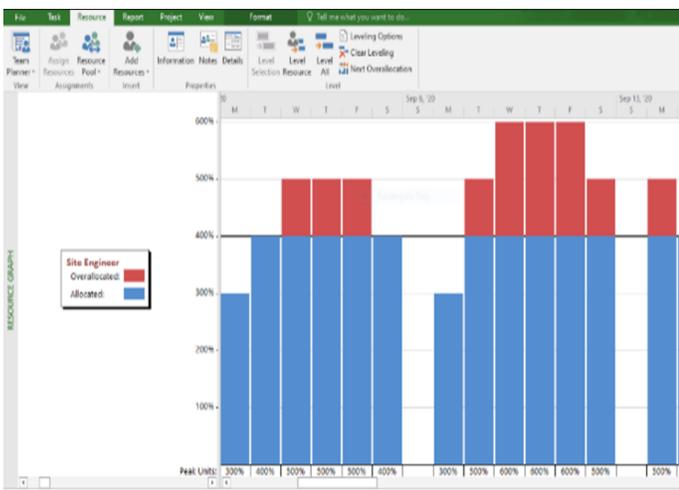


Fig 4: Resource graph after leveling

- When a construction project is well managed, material waste is minimised and resources are employed effectively.
- When software results were contrasted with on-site data, the results demonstrated the superior accuracy of our method.
- The maximum cost is incurred by the TM mixer machine i.e. ₹ 14,050,000 and minimum cost is incurred by concrete mixer machine.
- The work that was done cost Rs 27,162,425; however, the real cost was Rs 56202804.59. Cost savings of Rs 29,040,379.59 are made possible by the MSP because of effective planning, scheduling, resource allocation, levelling, tracking, etc.
- The maximum work hours needed by male laborer, which is 70000 hours, can be inferred from the MSP data.

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