

Development of Work Breakdown Structure for Residential Building Construction Project- A Case Study

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Abstract—In project management proper arrangement in setting the progress is the essential element. Planning is an initial step for each and every work in management field. Planning serves as the base work executing, monitoring, controlling and closing of the project. Hierarchical decomposition of the goal objectives, activities, sub activities and work package is done by work breakdown structure which involves managing the project. This study deals with planning, scheduling, tracking of a residential building using work breakdown structure. The work breakdown structures provide the general idea about the interdependencies of the activities which will be helpful during the project monitoring.

Keywords—Planning, scheduling, Microsoft project, work breakdown structure.

I. INTRODUCTION

A work breakdown is an essential component for any software project since it defines the details of the work that is necessary to accomplish a project's objectives. From the very early stage of submitting a project proposal, it is important to formulate the content of the project via a WBS. Such an early WBS formulation enables project needs to be better defined, and the resource and time estimations required to complete the project to be improved. Nevertheless, it is important to note that the WBS of a project changes over time, according to altering needs and constraints. In other words, although the WBS should be introduced at the very early stage of the project, it will be permanently exposed to changes, which should be properly presented in the WBS. The preparation of the WBS has an impact not only on the planning, but also on organizational level.

II. LITERATURE

A. A case study on highway project

This paper provides a proper method for planning, scheduling and Resource utilisation in construction projects and an application of activity-based computerised (MSP and MS Excel) planning, scheduling.

B. Resource scheduling in construction project using MSP

A case study of a project in Pune, Maharashtra, India was considered for finding out various aspects required in efficient planning and execution of the project. Various journal papers were referred to find out different methodologies to be adopted.

C. Application of MSP for time and cost management in real estate construction

Real Estate construction projects refer to the construction of habitable spaces like Residential, Commercial buildings. These projects have Sponsors who invest money while the rest other teams to manage the project & its construction.

D. A review on scheduling of construction project by MSP

The main aim of any construction project is not only to execute or complete it, but the main aim of any project is that, it should be that to complete it within given time limit, with greater efficiency and economy, which is very essential in successful completion of project.

E. Planning and scheduling of project using MSP

For finding out various aspects that proves efficient planning & execution of the project, disparate methodologies adopted and to find out remedial measures, international journal papers were referred. The method adopted includes defining of problem statement, insinuating the objectives from the data collected in two part viz. Primary data and secondary, analyzing the data and finally coming to the conclusion.

F. Planning and resource scheduling of residential project (G+7) using primavera

It concludes that by using the primavera, a time period of 4 months from the actual base schedule of the project was saved and also helps to prevent the cost overrun, thereby ensuring the successful completion of the project.

G. Planning and scheduling residential building using primavera software

The main objective of this project is to prepare the proper planning and scheduling and timely completion of two storey residential building construction at Dindugal. This project can

be completed before the contract duration and cost of all resources.

H. Planning, scheduling and allocation of resources for multi storied structure using oracle's primavera P6 software

The main goal and the mission of the study was to know the role of planning, scheduling, monitoring and controlling of the project progress with timely completion of any construction project.

I. Construction management in residential building using primavera

The benefit of effective planning, scheduling and controlling of construction project reduces construction time, cost over runs and minimize the disputes. It also helps to avoid the construction interruptions, keep the continuity of the work and avoid the delay of construction and cost.

J. Planning, scheduling and tracking of residential project using primavera project.

The study investigates the defects in the planning scheduling procedure off the client organization, the result revealed that the contractor and sub-contractor plays vital role in completion of project as scheduled.

III.METHODOLOGIES

WBS facilitates control by providing a clear basis for monitoring project progress using the structure of the project; thus, each team is accountable for the tasks assign to them. The real value of WBS is that it provides a graphic representation of the entire programmed with an orderly identification scheme for each level of the project.

Figure 1 represents the methodology adopted for proper completion of work breakdown structure.

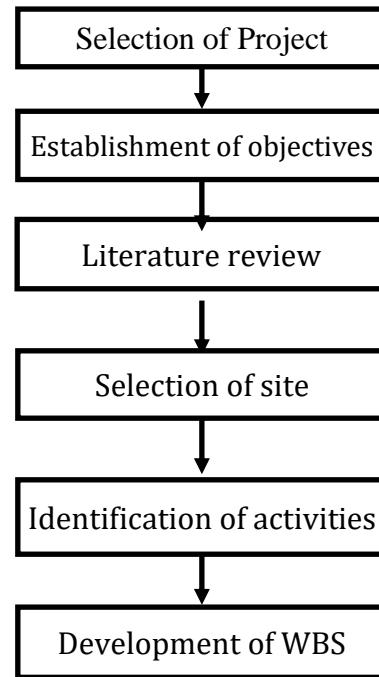


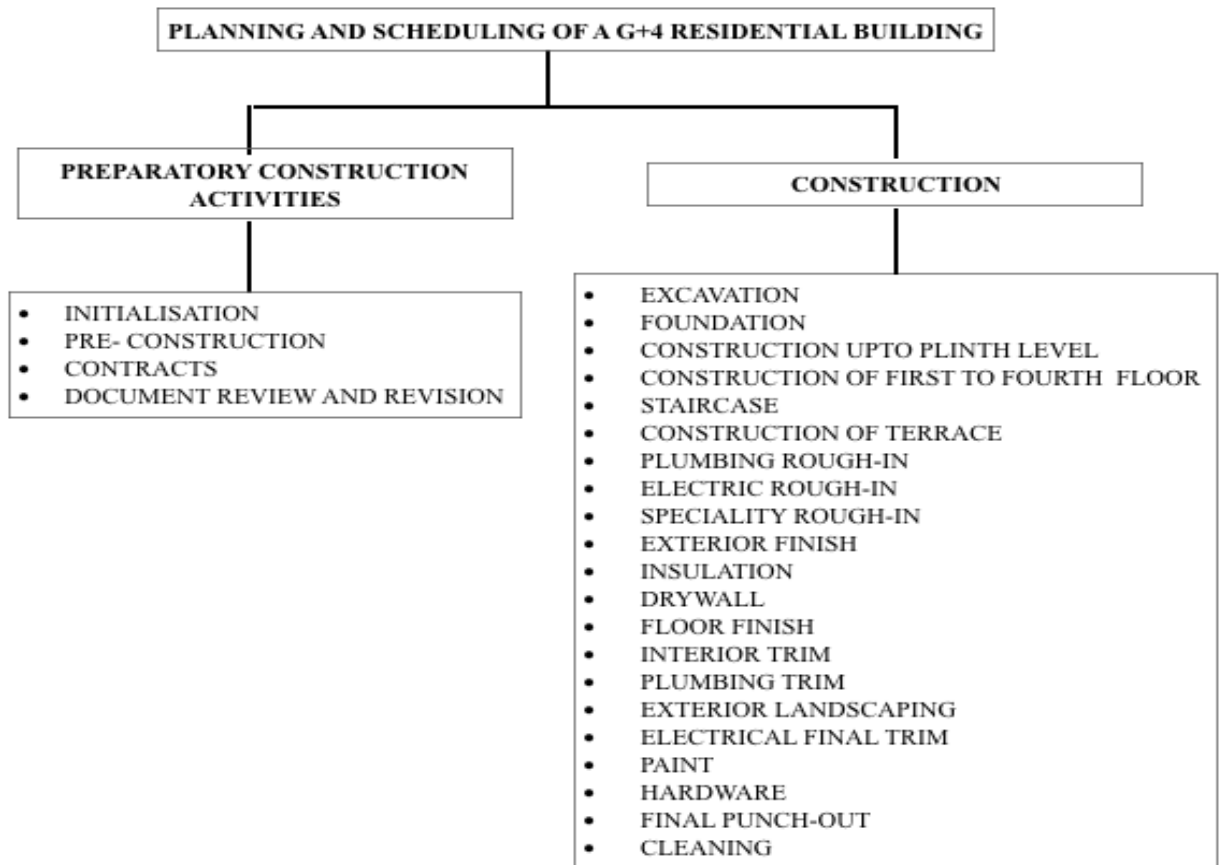
Figure 1. Flowchart of Methodology

IV.RESULT AND DISCUSSION

This project briefs about the various activities that are involved in construction of a building. the work breakdown structure divides the entire project into its component elements in order to establish a framework for effective management of project scope, schedule and planning.

Figure 2. Represents the primary work breakdown structure for G+4 Residential building.

Figure 2. Work Breakdown Structure for G+4 Residential building structure (Level 1 & 2)



work breakdown structure can be increased up to micro level. The detailed work breakdown structure of a project generates the various activities in details.

Figure 3, 4 & 5, represents the Level 3 & 4 construction activities along with their independencies. The level of the

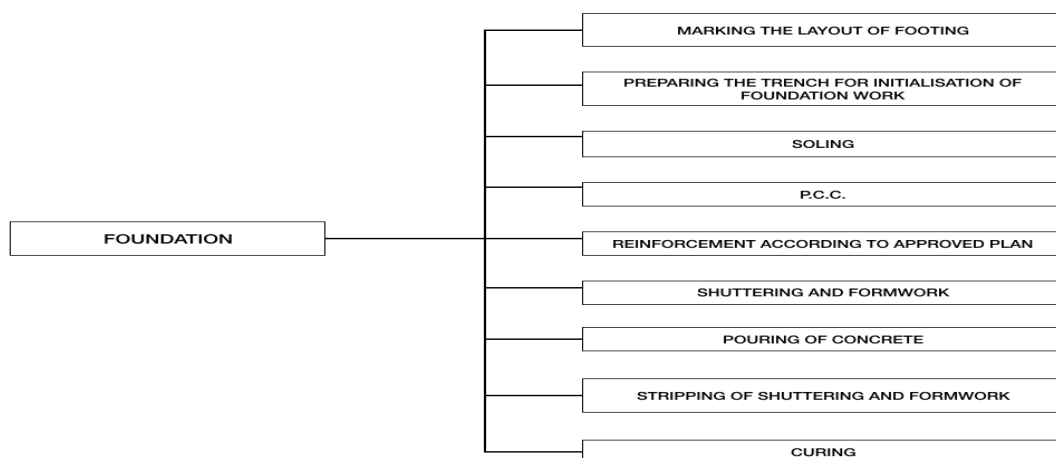


Figure 3. Work Breakdown Structure for G+4 Residential building structure (Level 3 & 4) for Foundation Activities

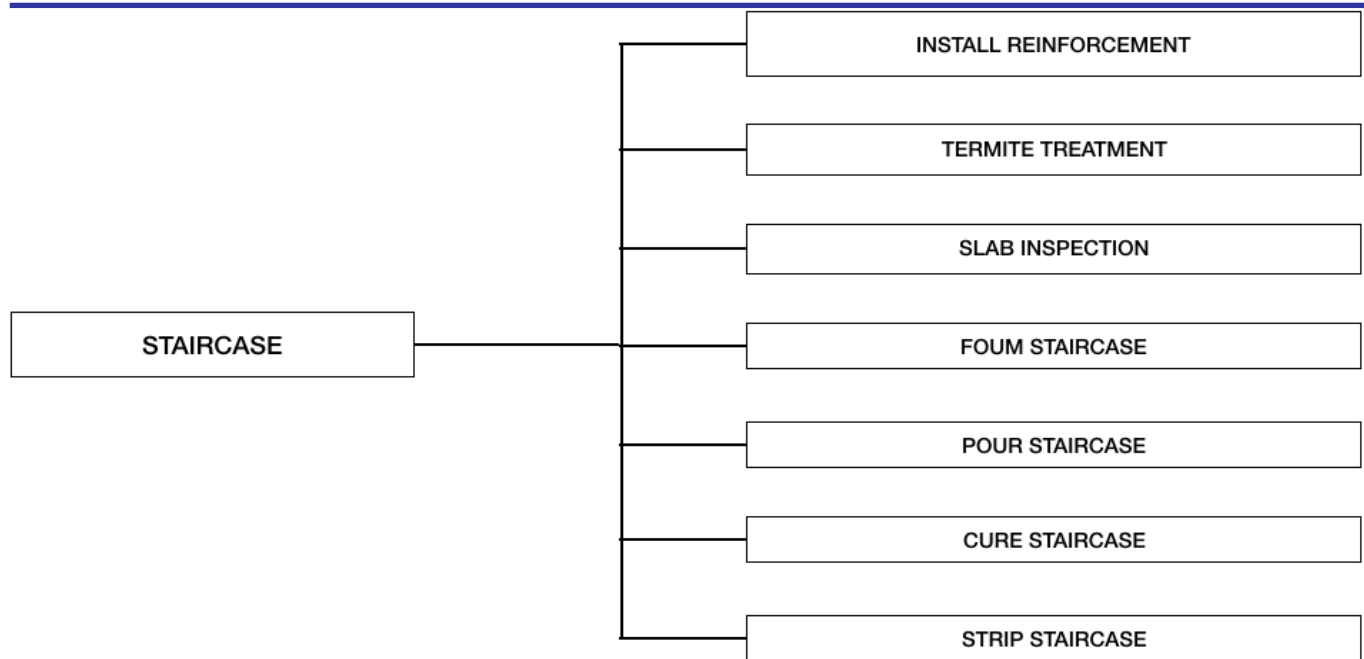


Figure 4. Work Breakdown Structure for G+4 Residential building structure (Level 3 & 4) for Plinth Activities

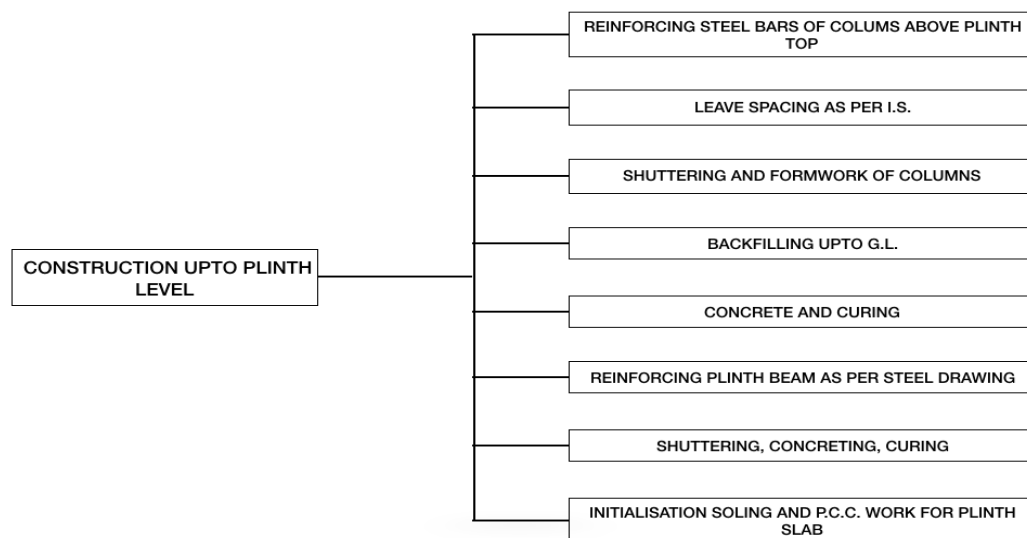


Figure 5. Work Breakdown Structure for G+4 Residential building structure (Level 3 & 4) for Staircase Activities

V. CONCLUSION

Construction management is the procedure of planning, coordinating and providing monitoring and controlling of a construction project. Construction management includes five stages: design, pre-construction, procurement, build, and owner occupancy.

A case study of a G+4 residential building located in Byculla, Mumbai is considered for the development of work breakdown structure. The case study focuses on Planning and Scheduling using Microsoft Project software. A detailed work breakdown structure which enlists the Pre-construction and construction activities is prepared which is further classified into various sub construction activities. A Work Breakdown Structure is an important tool for Project Management as it provides a visual aid to communicate specifics and manage particulars of the project that would otherwise be more difficult.

The above given information is meant to provide insight to the project. The purpose is to make a detailed case study of a construction building. The concept of work breakdown structure remains the key process of the project. Also the developed work breakdown structures successfully described the hierarchical process and independencies of the various activities. Finally developed work breakdown structures overviews on all the execution process for construction of building in micro level.

VI. ACKNOWLEDGMENT

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