Critical Study and Analysis of High Rise Building Using BIM (5D) In AECO Industry: A Review

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Abstract - The construction industry has acknowledged that its current scheduling and progress reporting practices are in need of substantial improvements in quality and efficiency. The tradition REVIT, scheduling and cost estimation in Oracle Primavera for high rise buildings (above G+5) in construction. To combining it with the currently used tools like Microsoft Project or Oracle Primavera help in linking of the activities in a critical path method schedule with the corresponding elements of a three-dimensional 3D model, from Autodesk Revit, thus making the project sequence easier to understand. BIM is a providing catalytic means for rethinking how we design, construct and operate our built environment sector. BIM provides the user with a real time representation of the project which may improve and speed up the construction planning as well as ensure data integrity and accuracy. In this study literature survey is carried out to understand the various techniques used for Critical Study and Analysis of High Rise Building Using BIM (5D) In AECO Industry.

Key Words: Construction Industry, Building Information Modeling, scheduling and monitoring

1. INTRODUCTION

The architecture, engineering, construction and operations (AECO) industry has long sought techniques to decrease project cost, increase productivity and quality, and reduce project delivery time. Building Information Modeling (BIM) offers the potential to achieve these. BIM simulates the construction project in a virtual environment. With BIM technology, an accurate virtual model of a building, known as a building information model, is digitally constructed. When completed, the building information model contains precise geometry and relevant data needed to support the design, procurement, fabrication, and construction activities required to realize the building. After completion, this model can be used for operations and maintenance purposes.

A building information model characterizes the geometry, spatial relationships, geographic information, quantities and properties of building elements, cost estimates, material inventories, and project schedule. The model can be used to demonstrate the entire building life cycle. As a result, quantities and shared properties of materials can be readily extracted. Building construction involves various contractors and subcontractors working in a constrained area. Regarding this constraint, each participant requires definite resources such as laborers, materials and equipment in order to execute their activities.

It is important to note that BIM is not just any single software; it is a process of software interlinks. BIM means not only using three-dimensional intelligent models but also making significant changes in the workflow and project delivery processes. BIM represents a new paradigm within AEC, one that encourages integration of the roles of all stakeholders on a project.

2. LITERATURE REVIEW

Xia Sheng Lee et al. (2013) have worked on this paper about A construction project’s success is influenced by the management of quality, time and cost. The major things that concern construction project clients, but are not limited to value for money, include: pleasing to look at, free from defects on completion, delivery on time, fit for the purpose, supported by worthwhile guarantees, reasonable running costs, and satisfactory long life. However, the data generated in a construction project is huge and sometimes inconsistent. This will increase the difficulty of project planning which may lead to misinterpretations and misunderstandings related to project results. The construction project clients, ranging from an owner of a house to a big company having their corporate headquarters, will be at the receiving end of uncertain
Building Information Modelling (BIM) offers the potential to achieve these objectives. BIM represents the development and use of computer generated n-dimensional (n-D) models to simulate the planning, design, construction and operation of a facility. Construction industry is the second largest industry in India. At the same time due increase in cost of Labor and material and also due to the fierce competition the profitability is decreasing day by day. That is why to increase the profitability there should be strictly control over the project activities of the work. There should be stringent control on the cost and time over run. After this we run our Revit model on navisworks and Schedule done on primavera.

Saini et al. (2013) old scheduling and monitoring technique fail to provide a clear view of the ongoing actual work at the project site. Building Information Modeling (BIM) is Single file is connect all the scheduling and Revit 3D model in one platform. Due to the difficulty observed in using the traditional scheduling and monitoring methods, the construction industry has acknowledged that its current scheduling and progress reporting practices are in need of substantial improvements in quality and efficiency. Research efforts to incorporate visualization into scheduling and monitoring have been motivated by the failure of traditional methods. This traditional method is take a lot time to run planning and scheduling.

N. S. Chougule et al. Construction industry has characteristic of having each product unique and transient. With the growth of technology other industries have changed and improved their process but the construction industry is still labor intensive and following same traditional process of generating drawings by architects or designers and building is erected by contractors. 2D CAD (Two Dimensional Computer Aided Drawing) represents only graphical entities like line, circle and arches. It possesses views like plan, section and elevation, in which modification in one view demands for manual modification in all other view. This process is hectic and error prone. Traditional software are not maintain accuracy as compared to today's software. BIM represents each object as a building component like walls, beam and column. Building model gets automatically updated in each view with modification in any one of the view which saves the time and less error prone. BIM contains all the information of each element of building from design to demolition. BIM software is very useful today's world and it minimize the errors and our valuable time.

3. OBSERVATIONS-

1. The study on, “Critical Study and Analysis of High Rise Building Using BIM (5D) In AECO Industry” can be carried out by using BIM software.
2. In this work the Revit software is used for create a 3D model and after that primavera software is used for scheduling.
3. Navisworks manage software is used for simulation of time and cost at one platform.
4. This work can be carried out by different traditional software’s like Auto Cad 2D, MSP, etc. These to hectic and take long time to getting results.
4. REFERENCES


