

A Small Study on Building Information Modeling [BIM]

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Abstract: The study shows that BIM does enhance the traditional scheduling and cost estimating methods with a more reliable and automated technology. Based on the Study on BIM and the case study, the work finds out that there are three areas of potential development in the future: i) higher levels of detail (LOD) in BIM model will be available as BIM technology develops, ii) linking time and cost parameters concurrently to BIM components in the building model to deliver a scheduled financial analysis, and iii) allocation of resources on 4D BIM model to analyze and plan the resource usage based on the most updated design, and even simulate the resource allocation

KEYWORDS: BIM, modeling, construction



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I.INTRODUCTION

Building Information Modelling (BIM) is a set of interacting policies, processes and technologies generating a “methodology to manage the essential building design and project data in digital format throughout the building's life-cycle”. As a key part in the project lifecycle, contractors play an important role in making on time and within the budget. This will show how BIM technology will benefit for Architect, Engineer and contractors for Estimating & schedule and cost controls. It begins with a general introduction of BIM technology and the different ways it works compared with traditional CAD (Computer Aided Design) method, and continues with evaluation of BIM tools. It then explains the uses of Scheduling and Cost Estimating in BIM respectively and provides a case study to show how BIM can work for Architect, Engineer and contractor. Building Information Modelling (BIM) is an emerging technology throughout the world in the Architecture, Engineering, and Construction (AEC) industries. BIM technology provides users with accurate and consistent building/project data and information, accommodating the functions needed to model the building and provides a virtual view of it. Building information models are increasingly used, for several purposes by the diverse stakeholders during the different phases of the project and building lifecycle. BIM revolutionize the AEC industry, being not only a change between CAD and parametric modelling with 3D capabilities, but a change of workflows, methodologies, process, and relations. Basically it changes the way business is done throughout the industry. Although all of these changes may seem too much to be easily accepted by the industry, the benefits are much greater, making BIM the future for the industry. Nowadays, Construction and BIM technologies are built for the trailer and the office. To improve productivity and efficiency in construction, these technologies need to be built it for the field, where the work is done and money is spent. According to the Construction Industry Institute 75% of all construction dollars are spent in the field, however, 90 % of the technology is made for the trailer and the office.

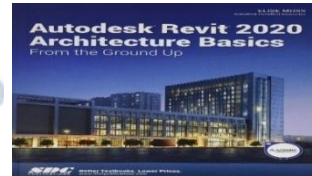
BIM CONSIST; -

1. Building Design
2. Infrastructure Design
3. Construction

1. Building Design

BIM design software is programs compatible with BIM, and developed for such purpose. Examples of BIM software include programs like ArchiCAD, Revit, AllPlan, BIM 360, and Tekla, to mention a few.

Revit is capable of making designs in 4-dimensions and tracking different stages in the whole project. It is used for coordinating building designs in a team that consists of members from different disciplines.



BIM 360 is capable of providing the team working on a construction project with real-time data, thus, increasing the speed of making decisions.

ArchiCAD is BIM design software that allows computer-aided solutions into the building design throughout the lifecycle of the project; thus, it integrates BIM functions with computer-aided solutions. All Plan gives the architects and building engineers room for more flexibility and creativity, allowing them to have full and precise control over



Building information models can be extracted from a computer and shared within the project team in order to enhance work on a particular building project. A wide range of persons can use BIM software. Individuals, organizations and even government establishments may utilize BIM design software for the design and construction of structures. BIM has applications in projects that have to do with electricity, water, communication, transport, oil and gas, and so on CAD, computer-aided design, and BIM, are related in a way that some may find it hard to distinguish between the two; however, there are differences between CAD and BIM. CAD refers to using the computer to create designs and drawings of

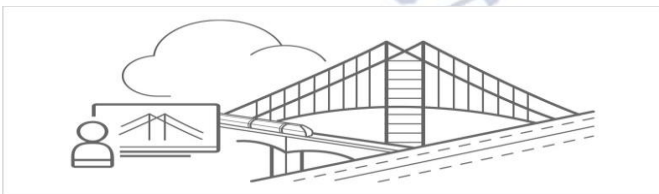
higher quality. With CAD, an architect can make 2-dimensional and 3-dimensional drawings of structures. CAD represents elements of building design with only arcs and lines, unlike BIM. CAD's limitation is that there is no distinction between the elements of architectural design.

B AUTODESK®
BIM 360™



2. Infrastructure Design

BIM tools, as presented before, are not yet ready to generate optimal results in terms of accessibility and liability in infrastructure design. For these reasons, the goal of the research is to find a good methodology to apply BIM in the civil field, analyzing the following relevant topics: I) Level of model definition; II) Objects library; III) Information exchange. In order to develop this research, the parametric model of the tunnel and related components were modelled using Autodesk Revit software. 2.1. Level of model definition one of the first objective in developing a BIM model of an infrastructure is to define its LOD. Design phase outputs required a very detailed definition of project components, in a way to enable the user to extract automatic schedules of elements.



3. Construction

By professionals allows them to view the model of the project and extensive virtual tour to know the impact it lays in the surroundings. It helps in the planning stage to construction process stage and prevents measures to harmless building effect.

With the application of BIM in an urban environment can help in analyzing the building concepts, energy analysis, fabrication routes, and logistics of how buildings in urban areas would interact with each other. Urban areas have taller building sites which create vast consequences on the surrounding environment and specific issues such as increased wind speed through ventilation effect, flood analysis, etc. to look into and solve them through proper measures.

Also Read: Benefits of digitalizing construction industry With accurate data and information about the model, all the proposed plan on the system can be worked upon easily as urban construction involves harmful effects to the construction industry that needs to be eliminated or minimized for which advent of BIM.



CONCLUSION

Using BIM as a tool to update the flow of information during a project is just as critical as doing it the first time. BIM tools will continue to develop in their ability to be streamlined, but current processes allow a BIM-enabled construction manager to complete tasks with relatively good efficiency.

As users become more proficient with the software and the process to which the software is applied, these tasks will be even faster. In this chapter, you took an updated Revit file and linked the new file into Innovaya to update your quantities and costs, you used the updated Revit file to run a schedule clash detection report in Navisworks.

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