



Residential Building Layout by using Rivet Software

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ABSTRACT

In this project we are detailed explanation how do we plan and modelling of G+5 Residential building by Autodesk Revit architecture, which renders complete vision of Construction. The Plan and modelling communication is gradually Being changed from 2D based to integrated 3D digital Interface. With BIM new technology it is easy to model the building and we can connect to Revit architecture, Revit structure, Built for Building Information Modelling (BIM). In general, for building plan and model can be employed by the Architecture of Autodesk Revit. Revit Architecture will Clear picture of building excellent visualization, that is made for Rendering purpose. For commercial Buildings it will very helpful for visualize building before Construction is made in the field. When the Revit Architecture window is displayed, there we can See the different types of templates such as construction template, Structure template, Architecture template. To accomplish this Project i.e for plan and modeling we use to select Architecture Template.

KEYWORDS : Families, components, Levels, Grid Lines, Revit software.

1. INTRODUCTION

Now-a-days due to over population and high cost of land, multi-stored buildings is more essential for metropolitan city. Multi storied residential buildings is the perfect solution for living of high population area. A multi storied residential building which possess multiple floor above the ground level, which aim to increase the floor area of the building in shortest built up area. So In order to satisfy these needs and make the process easy a new software called Revit Architecture. By the use of BIM (Building Information Modeling) we can make the clients more clear about the physical and functional

characteristics of place. As BIM involves generation and management of digital representation.

Building Information Modeling (BIM) and automated quantities technologies provide both opportunities and challenges for the project cost management profession. As quantification increasingly becomes automated and BIM models develop the role of the project cost manager will need to adapt accordingly to provide more sophisticated cost management services that incorporate 4D time and 5D cost modeling and sharing cost information/data with the project team as part of the BIM integrated project delivery approach. BIM involves more than just 3D modelling and is also

commonly defined in further dimensions such as 4D (time), 5D (cost) and even 6D (as-built operation). 4D links information and data in the 3D object model with project programming and scheduling data and facilitates the simulation analysis of construction

1.2 AUTODESK REVIT

Autodesk Revit is a building information modelling software which helps for Structural engineers, Architects, MEP engineers, designers and contractors. It allows users to design a building and structure and its components in 3D, annotate the model with 2D drafting element, and access building information from building

Parametric components, work sharing, design options, set schedules, documentation, phasing of project, interoperability, linked file, performance, work in perspective view, improved integration between Revit and structural analysis software. Revit helps designers to design, simulate visualise and collaborate in order to capitalize on the advantages of the interconnected data

- Work with Architectural components; Wall , Door ,Window ,Floor, Staircase, Ceiling

2. LITERATURE REVIEW

Building Description System (BDS) was the first system relatively close to modern BIM. It was described from the architectural expert Charles Eastman (1975).

Xinan Jiang(2008):

The model or project is a frame structure consists of a one residential building. In Revit first 3D model and then get directly 2D drawing with material quantity

Saeed Reza Mohandes(2005-2012):

Due to numerous steps of construction industry and its complicated and extensive structure, errors and reworks often might happen in this section. As such, BIM (Building Information Modeling) is regarded as a beneficial tool in minimizing the waste and improving the efficiency of building construction. This

J Vinoth Kumar (2009):

In India 49 % of the respondent use revit as measure Revit tool . The BIM is new and promising approaching India which is gradually gaining acceptance by the owners,Architects, Engineers and Builders.BIM is in field to better communicate and
Tsai et al., (2010)

activities. 5D integrates all of this information with cost data such as quantities, schedules and prices. 6D represents the as-built model that can then be used during the operational stages of the facility.

model database. Revit is capable to plan and track the various stages in building's life cycle: from designing stage to construction and the later demolition. Revit is more comfortable to create structure depending on requirements and determine real-world elements which are useful for building and construction.

within BIM Model. One can quickly create and modify multi-story buildings by connecting stairs to the levels in your project.

This paper shows the Autodesk Revit implementation in a 2-storey building. The construction stage and life cycle of a building can be studied using the software which helps in execution.

The first paper with the term Building Information Modeling, as we are using it now a days, was published on 1992 at the Technical University of Delft (Nederveen et al.,1992)

and many more which is essential to manage construction of building.

paper reviews and summarizes a substantial amount of requisite information relating to BIM from the literature reviews between 2005 and 2012. It has discussed the concept, explained the history, planning and implementation process and the benefits of using BIM in construction industry.

integrate construction information . The study concentrated on the deployment of the model to support planning scheduling and tracking of the job site operation in India.

Estimated the time taken in a live project by recording the 2D data and simulating it into 3D by Autodesk Revit software, MS Project, and BIM application and created 3D and 4D models. These techniques allowed the stakeholders and builders to

Vipul Gupta(2016):

The developed 3D Model can be beneficial in future planning and development. Also the creation of 3D Model helps in visualizing the building more appropriately. It also adds a new dimension to designing and planning by incorporating various

Rakesh Reddy,

A clear design and modeling of a commercial building with the efficient structural and architectural plans. It provides the overall knowledge of material take off and schedule/quantities in the

2.4 Objectives

1. Making of model of residential Building according to the BIM.

3. PLANING AND MODELING

3.1 INTRODUCTION TO REVIT SOFTWARE:

Autodesk Revit is a software which help the create the modeling and layout of the tree dimensional building information modeling software for architects, landscape architects, structural engineering ,layout engineers, designers and contractors developed by Autodesk. It allows users to design a building and structure and shape of the 3d model by defaults furniture setup and its components in 3D, annotate the model with 2D drafting elements, and access building information from the building model's database.[2] Revit is 4D BIM capable with tools to plan and track various stages in the building's lifecycle, from concept to construction and later maintenance and/or demolition

Modelling in Revit revealed itself to be both intuitive and challenging. The fact that the user places

3.2 Residential building requirements:

1. Strength and Stability
2. Dimensional Stability
3. Sound
4. Durability

determine the human resource requirements as well as the time cost of the construction project. Using these tools also increase the understanding of their application procedure.

advance concepts like Geo-Design. The world has moved from 2D to 3D modeling and adding of query mechanism to the functional 3D model would indeed increase the scope of engineering.

S. Kailashkumar(2019)

model of the building defined in the project. 3 D realistic view give the clear picture about the family and the components placed with in the building model

2. To use BIM for visualization of a Residential building before Construction with BIM.

representations of building elements in the model adds to the sense of progress and purpose of the design process, because as the modelling progresses, it resembles the finished building more and more closely. The proposed exercise to the student consisted in developing the architecture model of a small building, from drawings defined in AutoCAD as a way to train a new BIM-based tool, shows the 3D view of the project all modelled in Revit Architecture (Fig 3). The structure of the building is also apparent, with the bottom floor being partially underground. The 3D viewing environment allows the user to turn the whole model in whichever direction is intended and it is also possible to obtain top view of different levels of the project.

5. Lighting and Ventilation
6. Comforts and Conveniences
7. Economy
8. Resistance to Fire

9. Heat Insulation

11.Security

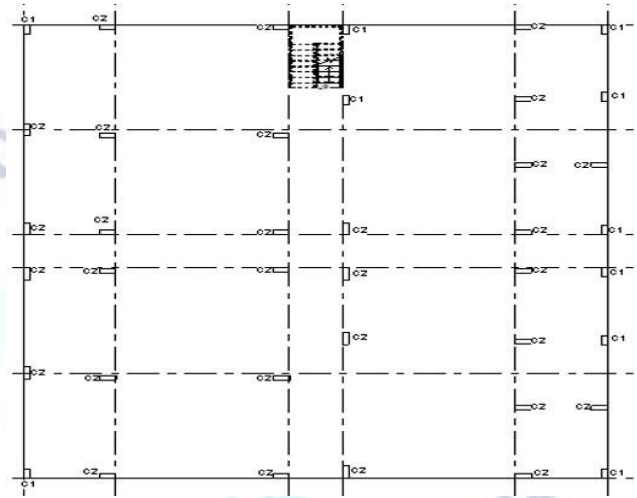
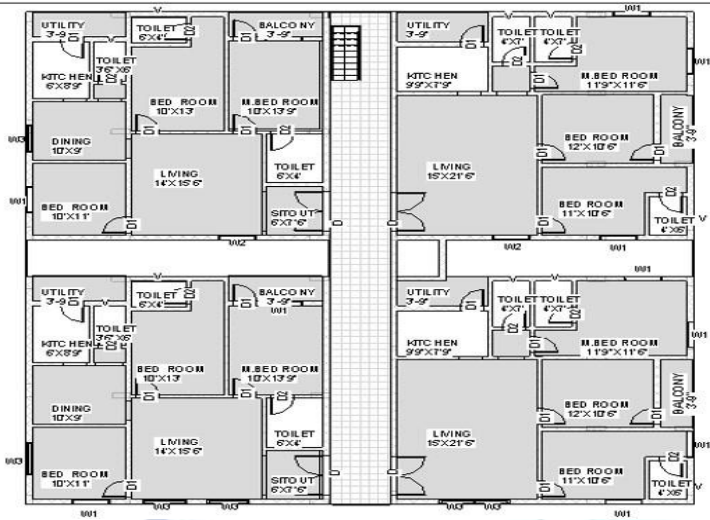
against

Burglary

10. Protection from Termite

3.3 ARCHITECTURAL LAYOUT DRAWING:

3.4 Column marking for plan



3D Model

Elevation View



Camera View

Cross Sectional View



Rendering Of Building



4. CONCLUSIONS

This project gives clear realistic modelling of building. we can get approximate estimation of building using autodesk revit architecture. in this project we have done the planning and modelling of the ground floor of selected g+1 building. we have made use of families such as wall, door, window floor ceiling etc. in architecture template.

To conclude, revit will ensure you waste less time dealing with the little manual tasks that so often delay project. you cut down on paper work which makes your project more sustainable and cost effective. there is also no reputation plus revit provides you with all the tools you need to create sustainable structure.

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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