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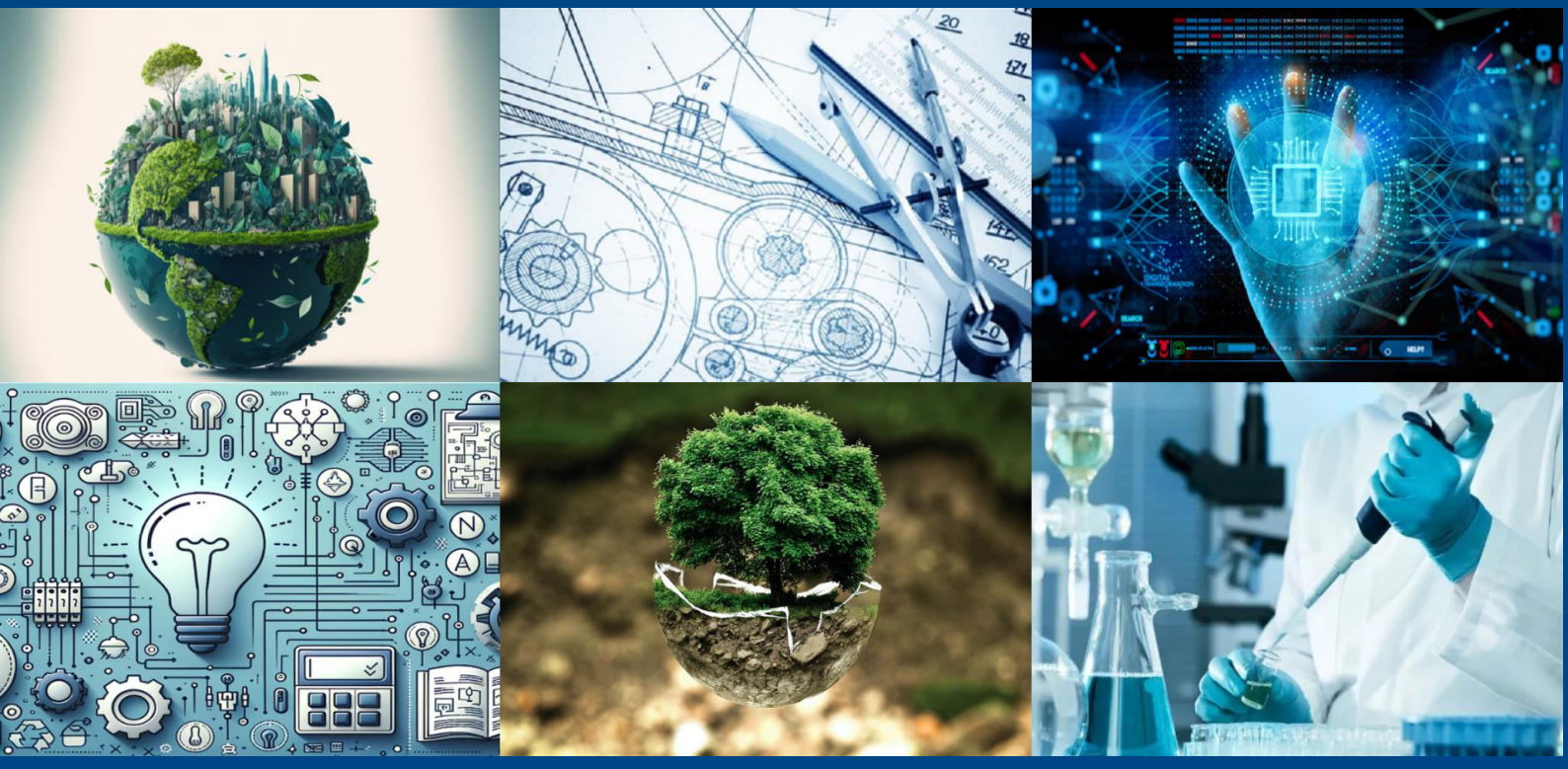

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Design of G+2 Residential Building using Revit Software

K.Deepak, M. Akhil, J. Pavan, P. Ramesh Chanti Kumar

U.G. Student, Department of Civil Engineering, Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Telangana, India

Assistant Professor, Department of Civil Engineering, Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Telangana, India

ABSTRACT: With the advancement of technology, the use of software to solve numerous problem in every technical discipline that formerly took a long time has become quite common. As a result, the use of software technology in the field of civil engineering to analyze, design and predict the behaviour of civil engineering structures before their life span has increased dramatically over the last decade. The project were explained about the design and modeling of G+2 residential building by using Autodesk Revit architecture as it gives clear vision via design , construction and documentation.

KEYWORDS: Components, Levels, R.C.C Elements, Plan, Section and 3D Model

I. INTRODUCTION

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. 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

Revit can be used as a very powerful collaboration tool between different disciplines in the building design sphere. The different disciplines that use Revit approach the program from unique perspectives. Each of these perspectives is focused on completing that discipline's task. Companies that adopt the software first examine the existing work flow process to determine if such an elaborate collaboration tool is required

FEATURES OF REVIT

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

II. LITERATURE REVIEW

G Uma Maheshwari and BT Shyamala (2017): worked on modelling of three-star hotel in Revit architecture software. This project gives realistic and accurate families ranging from furniture to lighting fixtures using Revit architecture software. Revit architecture, built specifically for Building Information Modelling, helps to capture and analyse design concept and more accurately, maintain our vision through design, documentation and construction.

E Rakesh Reddy, S Kailash Kumar (2019): worked on designing and modelling of G+5 commercial building using Autodesk Revit architecture software. To accomplish the project, that is, for design and modelling, they made use of

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architecture template Revit architecture window. According to them, Revit architecture gives you an exact vision of the building via design, construction and documentation. A S Shivsharan, Dr Reddy (July 2017): worked on modelling and energy analysis of residential buildings using BIM tool. This paper is based on Autodesk BIM and Revit capabilities to perform 3D modelling and energy analysis of G+9 residential building. Closer the model is to reality, greater the chance to create high performing reality.

Soundharya R and Uma (July 2017): worked on BIM modelling of two- storey building using Autodesk Revit architecture and the Autodesk Naviswork manage. This paper shows the Autodesk Revit and Naviswork manage implementation in a two-storey building. The construction stage of building can be studied by using Revit software. Autodesk Revit helps in 3 D modelling of the structure and helps to manage the project in an efficient way.

Sneha Kumbhar, Pratiksha Mane (2018): Application of BIM in cost of residential building construction. In paper, the process of 3D modelling includes 3D data acquisition, modelling and rendering. Revit is Autodesk solution of BIM to create structure of building for the analysis of cost of construction project.

1. J. Vinoth Kumar(2009): The study concentrated on the deployment of the model to support model to support planning, scheduling tracking of the job site operation in India.

III. METHODOLOGY

Gathering client requirements, site analysis, and initial layout sketching are the first steps in modelling a G+2 residential building with REVIT. Create 2D floor designs for the ground floor using REVIT, making sure that all sections and elevations meet to local construction rules and specifications for dimensions and operation. Use Rendering to apply realistic materials and textures, adjust lighting and surroundings, and generate excellent graphics. Present the design for remarks and final 3D visuals for construction and presentation.

OVERVIEW OF EXPERIMENTAL RESULT

GROUND FLOOR PLAN

FIRST FLOOR PLAN

SECOND FLOOR PLAN

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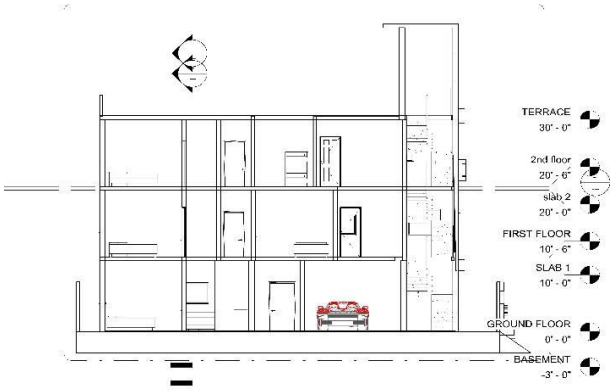
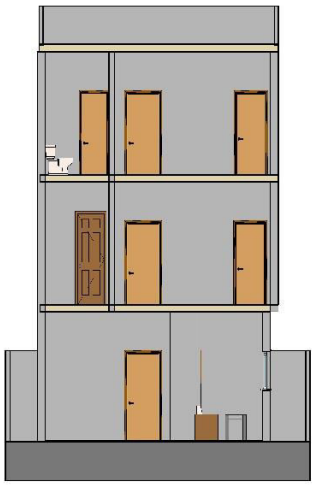
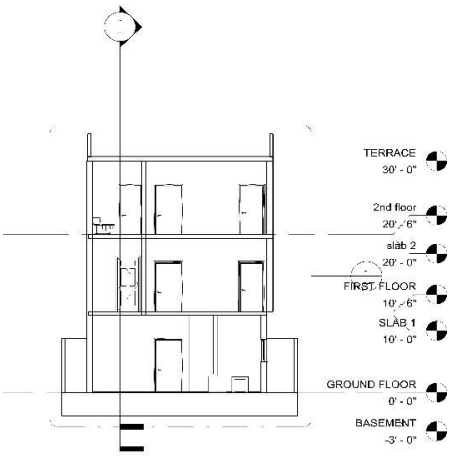


SECTION 1 IN HIDDEN LINE VIEW

SECTION 1 IN REALISTIC VIEW



SECTION 2 IN REALISTIC VIEW



SECTION 2 IN HIDDEN LINE VIEW

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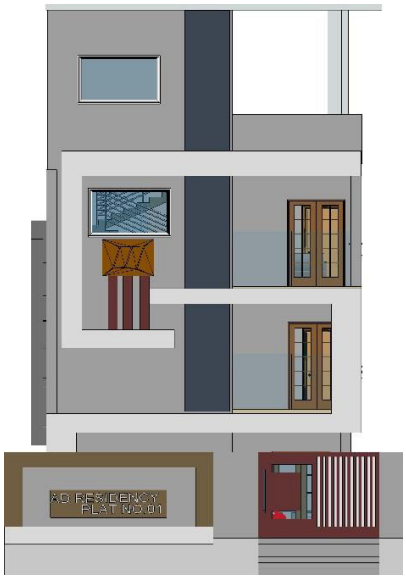
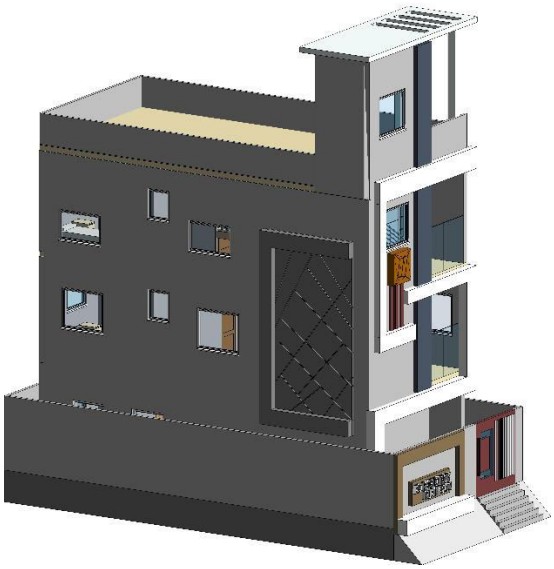
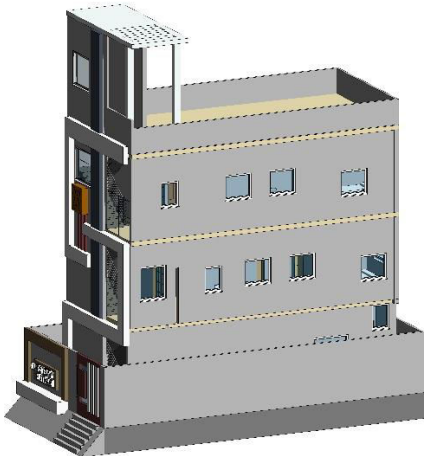


3D FRONT VIEW

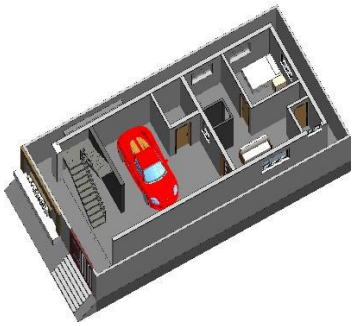


3D LEFT SIDE VIEW

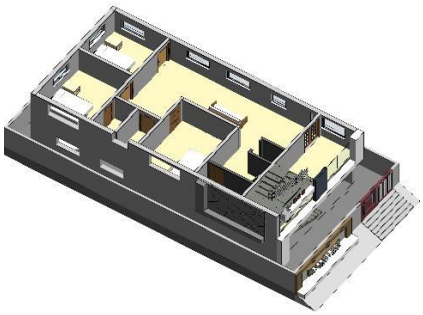


3D RIGHT SIDE VIEW

ISOMETRIC VIEW



GROUND FLOOR 3D SECTION VIEW



1ST FLOOR 3D SECTION VIEW

2ND FLOOR 3D SECTION VIEW

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IV. CONCLUSION

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+2 building. we have made use of families such as wall, door, window floor celling 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. A clear design and modelling of a commercial building with the efficient structural and architectural plans. 3 d realistic view gives the clear picture about the family and the components placed with in the building model also to provide over all knowledge of material take off and schedule/quantities in the model of the building. support for the software grows constantly as well. as bim becomes more popular, so too will revit. if you start using it now, you'll be ahead of the curve.

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