

Green Building Modeling Of Commercial Complex By Following IGBC Guide Lines

M. Ravikanth¹, S. Ajay Kumar², T. Hanumathu³, M. Tirupathi Rao⁴, N. Praneeth⁵, CH. Nazeer Khan⁶

¹Assistant Professor

¹Dept. Civil Engineering, Tirumala Engineering College, Narasaraopet, Pin code-522601, Guntur, Andhra Pradesh, India.

^{2,3,4,5,6}Dept. Civil Engineering, Tirumala Engineering College, Guntur, Andhra Pradesh, India

Abstract: The present ongoing issue in civilization is rapid growth of pollution and an increase in the number of motor vehicles, cars which are releasing gases which are harmful to human beings. To control this problem some basic building design planning is to be changed and the materials used in the construction are to be checked for their capacity. The only way to get the efficient design is following the "INDIAN GREEN BUILDING CORPORATION GUIDE LINES". There they have specified the appropriate energy emission for different building materials and replacements for various materials which consume high energy. Here in this design we made the use of a commercial complex where it can accommodate a 1000 people at a time the entire design following the IGBC guidelines. This gives a better environment in the highly populated zones. Entire design is carried out in "REVIT ARCHITECTURE" and in the "ENERGY ANALYSIS SOFTWARES".

Keywords—component; formatting; style; styling; insert (key words)

1. INTRODUCTION

Revit Architecture

Revit is Building Information Modeling (BIM) software for Microsoft Windows developed by Autodesk. It allows the user to design with parametric modelling and drafting elements with a fully integrated database. There are three software packages within the Revit BIM family of software: Revit Architecture, Revit Structure, and Revit MEP. Each package is targeted toward the architectural, structural, and mechanical/electrical/plumbing disciplines respectively. Autodesk purchased the software from Massachusetts-based Revit Technologies in 2002.

Lumion

Founded in 1998, Act-3D B.V. is the privately owned company behind Lumion. Based in Warmond, The Netherlands. Lumion is an exciting and powerful visualizing engine capable of taking ordinary Sketchup or Revit files and turning them into a masterpiece. Originally created for architects, Lumion is now used by thousands in architecture, landscape architecture, design and engineering. The power in Lumion is making texturing, assembling and rendering something you can not only do.

IGBC (Indian Green Building Council)

While rapid urbanisation, growing cities provide various opportunities, there are fallouts in terms of proliferation of slums, high prices of land and building materials which render houses unaffordable for the segment at the bottom of the pyramid. Therefore, the need for adequate housing for the low-income groups will substantially increase. MoHUPA has estimated the housing shortage of 18.78 million during the 12th Five Year Plan (FYP) period of which over 95% of this housing shortage is estimated in the Economically

Weaker Sections (EWS) and Low Income Group (LIG) categories. To address this shortage, intensive efforts are required to substantially increase affordable housing stock. Most importantly, while we create housing for these sections of the society, they need to be green too. The principles of green and sustainability are fortunately or unfortunately community-agnostic, in the sense that they also need to handle wastages a bit more carefully, be thrifty in the usage of energy & water, handle waste in a hygienic manner to avoid outbreak of epidemics, reduced use of virgin materials and above all enhance their own quality of lives.

Green Building Studio

Green Building Studio is a web-based simulation engine for whole building energy analysis. It is based on the DOE-2 simulation engine and powers the BIM Based Energy/Sustainability. Whole building energy analysis tools across Autodesk products: - Revit and Vasari. DOE 2 is a back end to GBS which is more like a user interface that displays the generated data in a readable format. It can perform analysis on any gbXML file, therefore any software capable of gbXML export can also work with GBS. GBS does not have 3D modeling capabilities. It is solely dependent on external sourced data. Autodesk whole building analysis workflow is shown in the diagram. GBS requires an Autodesk subscription for a full exploration of its capabilities, although it can still work with just an Autodesk registration but certain parameters in the software cannot be edited. Since it is cloud based, it cannot be installed on a host machine. The advantage is that the results can be viewed anywhere with an internet connection.

2. LITERATURE REVIEW

The definitions available for BIM in the literature, so as to understand clearly the real agenda of BIM is necessary. Consideration is also given to the natural environment, user environment and owner satisfaction throughout the lifecycle within this definition. BIM helps providing value judgments required for creating a more sustainable infrastructure that will comply with the needs of the owners and occupants. BIM seeks to integrate processes throughout the entire lifecycle of a construction project as a lifecycle evaluation concept. The information provided by BIM analysis should be consistent and such that it can be used throughout the lifecycle of the project. BIM uses the method of collaborating the stakeholders in project using ICT to exchange valuable information throughout the lifecycle. Building Energy Modeling (BEM), which is another feature of Building Information Modeling (BIM), integrates energy analysis into the design, construction, and operation and maintenance of buildings. There are various software's available for the evaluation of the structure in various phases of the building lifecycle. Twelve BEM tools initially were evaluated using four criteria: interoperability, usability, available inputs, and available outputs. Three BEM tools were selected based on the initial evaluation. BEM tools selected helped in finding out the energy usage, daylighting performance, and natural ventilation for two academic buildings (LEED-certified and non-LEED-certified)

3. EXPERIMENTAL PROCEEDURE

Linking an Architectural Revit model

Save architectural Revit model(s) on the server in the appropriate job folder. If the file name ends with "Central", rename it. For example, if the file name is 4567 Office Arch Central.rvt, rename it to 4567 Office Arch.rvt.1. Open the architectural file(s). Before clicking open, check the Detach from Central option. Accept any warning prompt that appears.

2. Once the file is open, go to File --> Purge Unused...

3. Click on Check All then click OK.

4. Save and close the file.

5. Start a new project.

6. Go to File --> Import/Link --> Revit...

7. Browse for the Revit building model file. Before clicking Open, check the Origin to Origin option. Click Open.

Copy/Monitor Levels

1. Once the file is open, double-click on one of the default elevation views within the Project Browser if not already selected.

2. Zoom (Zoom Region - ZR) into the edge of the building where it shows the Levels (typically on the right hand side of the elevation view).

3. Go to Tools --> Copy/Monitor --> Select Link (or Click the Copy/Monitor toolbar button and click Select Link.)

4. Select the building model by left-clicking on any part of it. In the Design bar (on the left), the Copy/Monitor mode is activated.

5. In the Copy/Monitor menu, click Options. The default options can remain as they are but can be edited as needed. Close Copy/Monitor Options.

6. In the Copy/Monitor menu, click Copy.

7. Individually click on each level of the building model. Allow time for Revit to process the information after each click. Accept any warnings that may appear.

8. Click Finish Mode in the Design Bar to close the Copy/Monitor menu.

Creating Floor Plans

1. Go to View --> New... --> Floor Plan...

2. In the New Plan dialog box, the levels that you copied in the previous steps should be listed. Select each one and click OK. Floor plans default to 1:100 but can be changed Revit MEP 2009 Project Setup revitgarage.com if needed.

3. By default, Revit sets these new floor plans up as Architectural plans. In the Project Browser, expand the Architectural heading and you'll see the new plans that you just created.

Copy/Monitor Grids

Copying grids allows you to stretch the grid lines and bubbles in your plans, sections, and elevations to fit your sheet views. It also allows you to monitor any changes to the grid layout. Once you copy grids, you will then need to turn off the linked architectural/structural grid lines.

1. Switch to a plan view.

2. Go to Tools --> Copy/Monitor --> Select Link (or Click the Copy/Monitor toolbar button and click Select Link.) Select the building model by left-clicking on any part of it. In the Design bar (on the left), the Copy/Monitor mode is activated.

3. In the Copy/Monitor menu, click Copy.

4. Individually click on each grid line of the building model. Allow time for Revit to process the information after each click. Accept any warnings that may appear.

5. Click Finish Mode in the Design Bar to close the Copy/Monitor menu.

6. Within each floor plan that was created in the previous section, you will need to turn off the grids within the linked architectural/structural file(s).

7. To do this, go to Visibility Graphics (VG) and click on the Revit Links tab.

8. Next to the link name click on By Host View and click the button next to Custom.

9. Next, click on the Annotation Categories tab.

10. Click on the list box and change <By Host View> to <Custom>

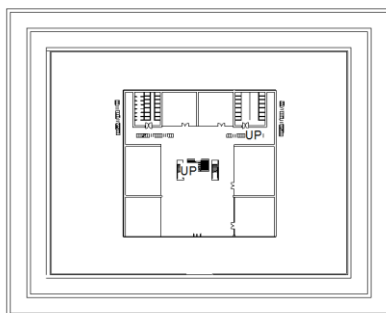
11.Scroll down the list of annotation categories and uncheck Grids.

12.Click Ok twice to exit out of Visibility

Graphics.**Modelling**

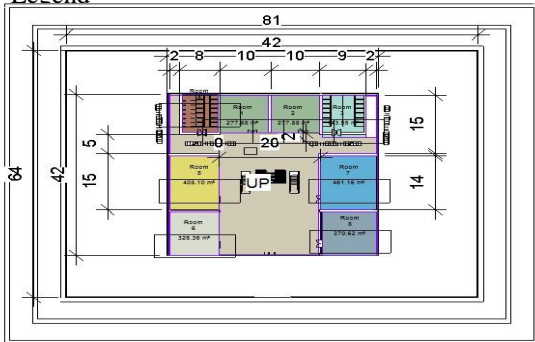
Drafting

The clear details mentioned in the figures what we have placed here inthe document they can give thecompleteinformation.




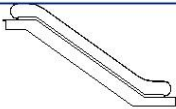






4. USING THE TEMPLATE

Legend



elevation legend

- 68 m²
- 93 m²
- 97 m²
- 108 m²
- 121 m²
- 136 m²
- 157 m²
- 753 m²

Type of material	Plan	Section
Escalator		
wall		
window		
curtain wall		

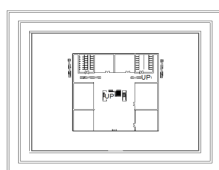
Schedulin

A	B	C
Project Number	Area Type	Perimeter
BATCH NO 5	Building Common A	34
BATCH NO 5	Building Common A	39
BATCH NO 5	Building Common A	39
BATCH NO 5	Building Common A	65
BATCH NO 5	Building Common A	50
BATCH NO 5	Building Common A	44
BATCH NO 5	Building Common A	224
BATCH NO 5	Building Common A	48
BATCH NO 5	Building Common A	42

A	B	C	D
Assembly Code	Count	Family	Image
1	1	Escalator_Kone_EC	
1	1	Escalator_Kone_EC	
1	1	Escalator_Kone_EC	
1	1	Escalator_Kone_EC	
1	1	Escalator_Kone_EC	
1	1	Escalator_Kone_EC	
1	1	Escalator_Kone_EC	
1	1	Escalator_Kone_EC	
1	1	Escalator_Kone_EC	
1	1	Escalator_Kone_EC	
1	1	Generic Models 1	
1	1	Generic Models 2	
1	1	Generic Models 4	

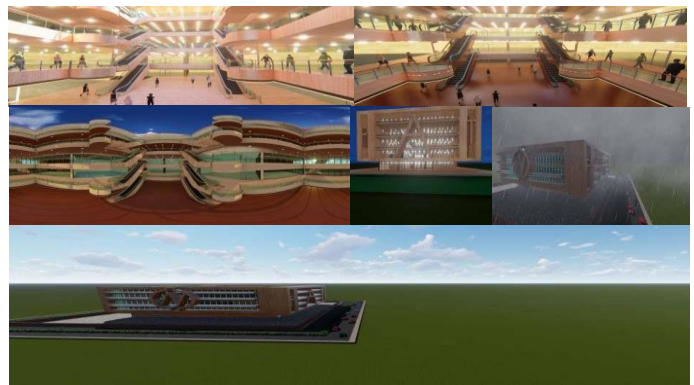
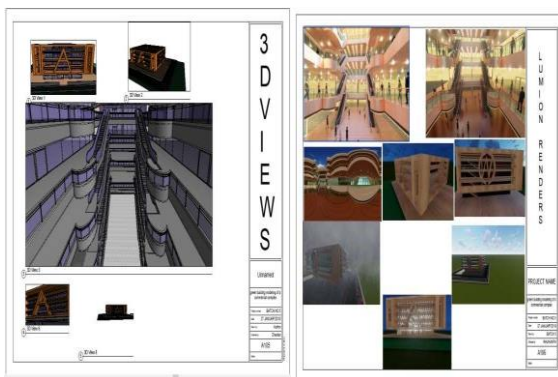
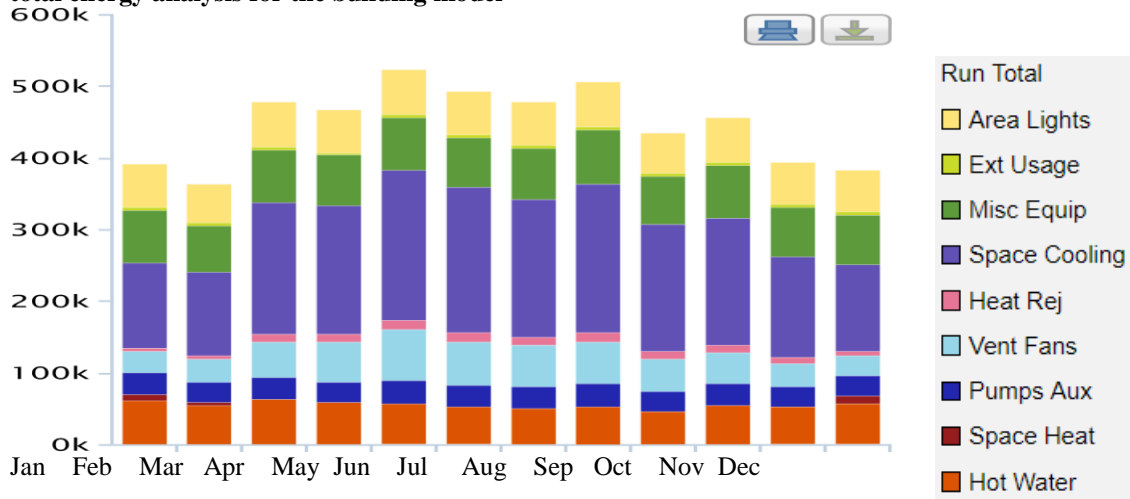
A	B	C
Area	Area Type	Perimeter
68 m ²	Building Common A	34
93 m ²	Building Common A	39
93 m ²	Building Common A	39
97 m ²	Building Common A	65
157 m ²	Building Common A	50
121 m ²	Building Common A	44
753 m ²	Building Common A	224
136 m ²	Building Common A	48
108 m ²	Building Common A	42

Legends and Schedules



5. CONCLUSIONS

Energy analysis results for the project of update 12 the following charts represents the bar chart for the total energy analysis for the building model



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