

VOL. 5

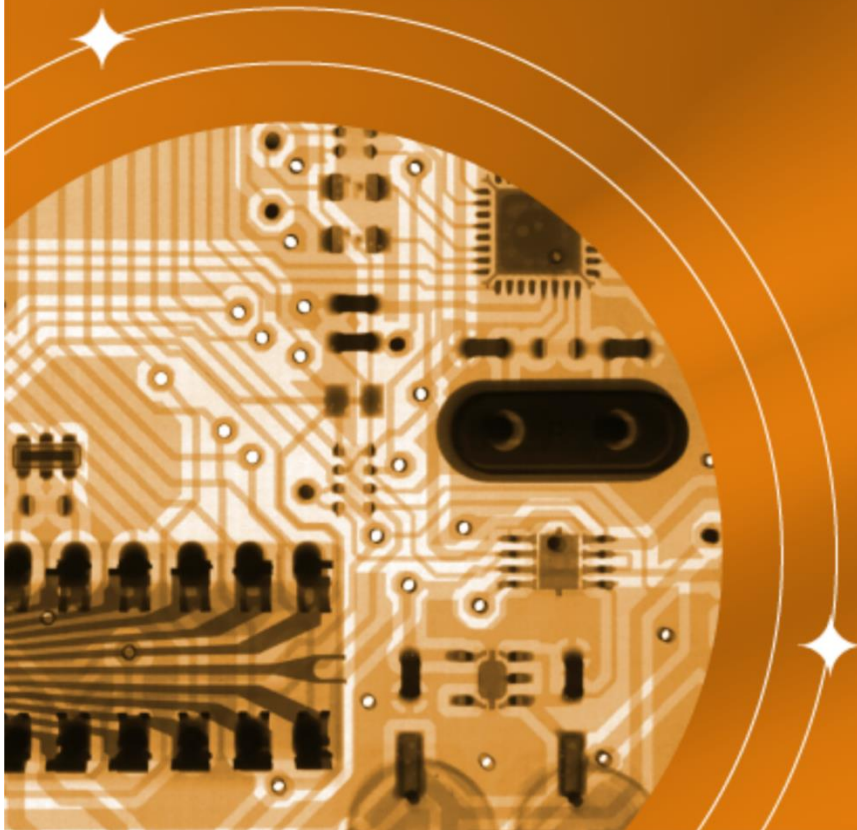
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Utilization of BIM Technology, Autocad Software, and Sketch Up in Architectural Design Drawings	Ulinata Ulinata	PDF HTML
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- Evaluation of the Provision of Construction Support Through Business Entities (Case Study: Terbanggi Besar Kayu Agung Toll Road)** by Hera Catiyning Putri, Iris Mahani, Budi Hasholan (5999-6014). [pdf](#) [html](#)
- Overview of the Influence of Land Use Change and Sediment Control Structures on Sedimentation in Lake Sentani** by Laorens Mieheli Ngutra, Mujadi Mujati, Harmonis Rante, Bernathius Julison, Duha Awaluddin, Dewi Ana Rusim (5809-5818). [pdf](#) [html](#)
- Adoption of social media in The Creative MSMEs Sector Through a Bibliometric Approach** by Zahri Maulana Jilham Al'ula, Lissa Rosdiana Noer (5802-5814). [pdf](#) [html](#)
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FORMULIR REVIEW NASKAH

Round 1

Judul Artikel : Utilization of BIM Technology, Autocad Software, and Sketch Up in Architectural Design Drawings

KOMPONEN	DESKRIPSI	TIDAK ADA	KURANG	CUKUP	BAIK	KOMENTAR
Pemeriksaan Teknis	Bebas Plagiasi/Tingkat Plagiasi			V		Wajib di Side Bar
	(Kelengkapan Artikel (elemen kunci: judul-penulis-afiliasi-kata kunci (PDF dan OJS metadata), teks utama, referensi, dan semua tabel dan gambar).			V		Wajib di Side Bar
	Konsistensi gaya artikel (sesuai dengan template)			V		Wajib di Side Bar
	Tata Bahasa Indonesia/Bahasa Inggris.			V		Wajib di Side Bar
	Angka dan tabelnya lengkap atau cukup jelas untuk dibaca			V		Wajib di Side Bar
	Referensi lengkap dan konsistensi gaya referensi			V		Wajib di Side Bar
Judul	Lugas		V			Wajib di Side Bar
	Menampilkan kebaruan (harus dijelaskan dalam pendahuluan)			V		Wajib di Side Bar
	Bukan replikasi atau duplikasi (harus dijelaskan dalam pendahuluan)			V		Wajib di Side Bar
Penulis dan Afiliasi	Nama lengkap tanpa gelar akademik			V		Wajib di Side Bar
	Nama penulis harus disertai dengan informasi afiliasi lengkap (dari divisi/unit/departemen), alamat, email, dan email yang sesuai)			V		Wajib di Side Bar
Abstrak	Abstrak terdiri informasi singkat			V		Wajib di Side Bar
	Latar belakang umum			V		Wajib di Side Bar
	Tujuan			V		Wajib di Side Bar
	Metode			V		Wajib di Side Bar
	Hasil			V		Wajib di Side Bar
	Kesimpulan			V		Wajib di Side Bar
	Tata bahasa			V		Wajib di Side Bar
Kata kunci	Menggunakan istilah studi tertentu			V		Wajib di Side Bar
	Mencerminkan/mewakili konten atau topic utama			V		Wajib di Side Bar
	Sesuai urutan abjad)			V		Wajib di Side Bar
Pendahuluan	Pendahuluan terdiri dari			V		Wajib di Side Bar
	Permasalahan Studi secara umum tentang fokus kajian			V		Wajib di Side Bar

Laorens Miehell Ngutra, Mujiati, Harmonis Rante, Bernathius Julison, Duha Awaluddin, Dewi Ana Rusim

KOMPONEN	DESKRIPSI	TIDAK ADA	KURANG	CUKUP	BAIK	KOMENTAR
	Permasalahan Studi secara khusus tentang fokus kajian			V		Wajib di Side Bar
	Menggambarkan survei literatur bukan disajikan per penulis, tetapi disajikan sebagai kelompok per metode atau topik yang ditinjau yang mengacu pada beberapa literatur			V		Wajib di Side Bar
	Kebaruan dan <i>State of the art</i>			V		Wajib di Side Bar
	Tujuan penelitian			V		Wajib di Side Bar
	Kontribusi penelitian yang jelas			V		Wajib di Side Bar
Metode	Jenis Penelitian		V			Wajib di Side Bar
	Pendekatan Penelitian		V			
	Data dan sumber data		V			
	Teknik pengumpulan data		V			
	Teknik analisis data		V			
Hasil dan Pembahasan	Menyampaikan temuan penting			V		Wajib di Side Bar
	Membandingkan temuan dengan penelitian sebelumnya			V		Wajib di Side Bar
	Membandingkan hasil dan teori			V		
	Harus menjawab apa/ bagaimana tujuan yang diuraikan dalam pendahuluan? mengapa hasilnya ditunjukkan seperti itu? dan apakah hasilnya konsisten dengan penelitian sebelumnya? Atau ada perbedaan? (apa lagi)			V		
Kesimpulan	Argumennya logis dan valid			V		Wajib di Side Bar
	Sesuai dengan tujuan yang ditentukan			V		Wajib di Side Bar
	Data mendukung kesimpulan			V		Wajib di Side Bar
	Berisi rekomendasi atau implikasi penelitian			V		Wajib di Side Bar
Referensi	Setidaknya/minimal 35 referensi			V		Wajib di Side Bar
	Harus dapat dilacak, karena minimum 80% referensi harus diambil dari jurnal yang memiliki reputasi baik (minimal mengambil 10 rujukan dari scopus)			V		Wajib di Side Bar
	Rujukan mayoritas haruslah yang diterbitkan dalam 10 tahun terakhir (85%)			V		Wajib di Side Bar
	Harus dikelola dengan menggunakan Endnote, Zootero, dan Mendeley			V		Wajib di Side Bar
	Referensi sangat sesuai dengan topik yang dibahas)			V		Wajib di Side Bar
Review Artikel Wajib di Tempatkan di Side Bar						

Utilization of BIM Technology, Autocad Software, and SketchUp in Architectural Design Drawings

*Correspondence

ABSTRACT

Keywords: BIM technology; AutoCAD software; sketch up; architectural design drawings.

Architecture is a science that studies designing a building by applying 3 principles, namely strength, function, and beauty. A building generally consists of a form or pattern in the form of 2 dimensions, for example, the floor plane, the ceiling plane, and others, and the shape/form consists of the shape/shape of a volume (3 dimensions), for example, the space in the building. In designing a building, an architect who is an expert in the field of architecture is needed. This study uses a descriptive method to find out how to make design drawing documents by utilizing BIM technology, AutoCAD software, and SketchUp. The results show that BIM technology, AutoCAD software, and Sketch can produce architectural design drawings more efficiently in terms of time, and cost and produce more accurate image quality. From the explanation above, it can be concluded that the results show that the use of BIM technology, AutoCAD software, and sketch-up in architectural design can produce architectural design drawings more efficiently in terms of time, and cost and produce more accurate image quality.



Introduction

Architecture is a field of science that not only designs the construction of a building but is also needed to learn about the art of designing buildings that use three basic principles, namely strength (families), function (utility), and beauty (venustas) (Warmadewa University, 1992). A building generally consists of planes and spaces. A plane is an abstract idea that can be interpreted as a flat surface, extending in all directions infinitely, and not having a two-dimensional thickness such as floor plans, ceiling planes, and others that have widths and lengths or heights and bases. (Boulanger, 2022). Shape/appearance Space is an element that expresses the depth of the impression of space and can be expressed in three-dimensional form, for example as space in a building. (Raden, 2021).

In designing a building, an architect who is an expert in the field of architecture is needed. Chapter III Article 4 of Law of the Republic of Indonesia number 6 of 2017 concerning Architects, explains architect practice services in the form of the provision of professional services related to the implementation of architect activities which include the preparation of preliminary architectural studies, the design of buildings and their environment, the preservation of buildings and their environment, the design of building

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Commented [m3]: Perlu diperkuat dengan menjelaskan tren penggunaan program BIM, Autocad, dan SketchUp saat ini. Jelaskan juga apa yang membedakan penelitian ini dengan penelitian sebelumnya.

layout and their environment, the preparation of technical planning documents; and/or supervision of architectural aspects in the implementation of building construction and its environment. In addition, architectural practice services can be carried out jointly with other professions. Furthermore, in Chapter III article 5 explains the architect's performance standards which explains that the Architect's Practice service must meet the Architect's performance standards which includes the architect's ability to provide design drawing documents apart from the plan document, calculation of the volume of documents, work plans and conditions and periodic supervision documents (Law of the Republic of Indonesia Number 6 of 2017, 2017).

In the past, drawing and designing techniques were done in a manual way which was done by pouring concepts or ideas first on blank paper and then after that it was scratched using pencils, rapids, and other equipment. (AlFajri & Nasution, 2016). Drawing manually is a difficult job and takes a long time because it has to be etched first before the drawing is approved because the drawing really cannot be changed after it is poured into drawing paper.

For this reason, it is necessary to know how to make design drawing documents that are by standards and are more efficient in terms of time cost, and accuracy. Currently, the architectural modeling program is a tool in architectural design that continues to develop along with the development of technology that can act as a drawing and design tool for architects where this modeling program is based on visual graphics and *Drafting*. (Karista, S, Fadhillah, & Wijayanto, 2022). Architectural modeling programs that are often used in making architectural design drawings are BIM, Autocad, and Sketch Up technology in order to help architects produce design drawings that meet standards from the design stage to the construction and construction stage so that it is more efficient in terms of time, cost and also produces more accurate image quality.

Method

The research method in the article entitled Utilization of BIM Technology, Autocad Software and Sketch Up in Architectural Design Drawings uses a qualitative descriptive method where this article describes architectural design drawings by utilizing BIM technology, Autocad Software, and Sketch Up.

Results and Discussion

Some of the architectural modeling programs that are often used in making architectural design drawings are as follows:

1. Autocad

Used for 2D and 3D drawing developed by *Autodesk*. Initially, Autocad was released in 1982 and was designed with simple software which was later developed in 1984 to develop 3D features. Until now autocad is the most popular software used by architects and teams to produce Design Drawing products.

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"Deskriptif kualitatif" kurang tepat, sebaiknya dijelaskan jenis pendekatan kualitatif yang digunakan (misalnya, studi kasus, fenomenologi, dsb.).
Tambahkan penjelasan tentang bagaimana data dikumpulkan dan dianalisis.

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Overview of the Influence of Land Use Change and Sediment Control Structures on Sedimentation in Lake Sentani

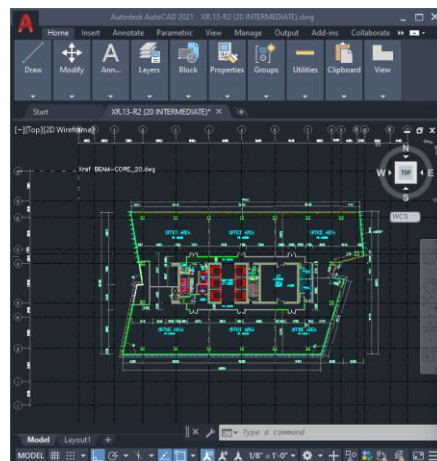


Figure 1
Drawing Plans using Autocad

But often in a Design Drawing, to continue to 3D *modeling* is more using 3D Sketch *software* because its features are more complete than 3D by Autocad.

2. Sketch Up

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Overview of the Influence of Land Use Change and Sediment Control Structures on Sedimentation in Lake Sentani

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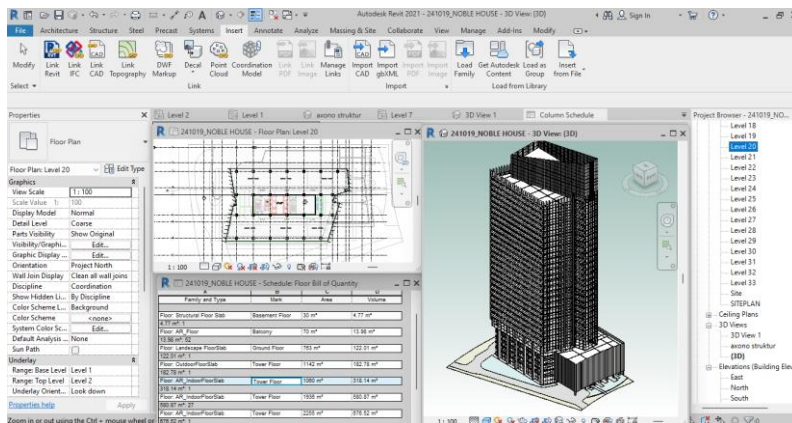


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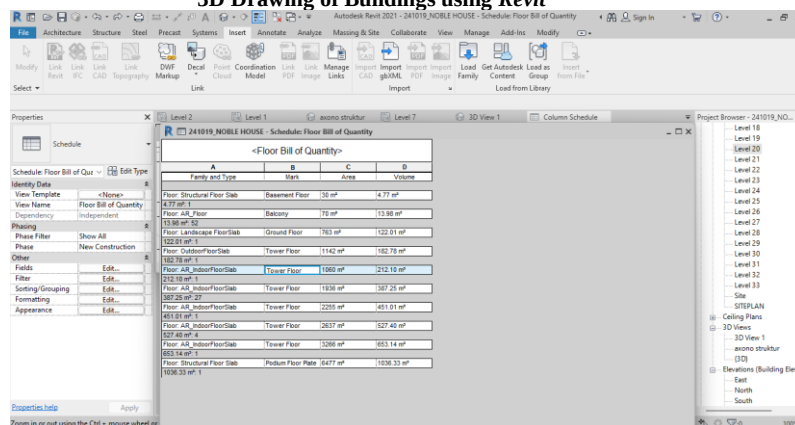


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Bambang Eko Widyanto, Asep Setiawan, Yanyan Agustian

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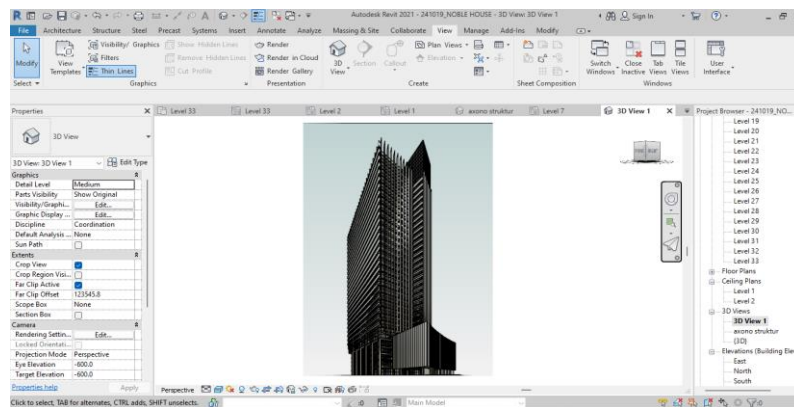


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Utilization of BIM Technology, Autocad Software, and Sketch Up in Architectural Design Drawings

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Universitas Kristen Indonesia, Indonesia

Email: ulinat@uki.ac.id

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ABSTRACT

Keywords: BIM technology; AutoCAD software; sketch up; architectural design drawings.	Architecture is a science that studies designing a building by applying 3 principles, namely strength, function, and beauty. A building generally consists of a form or pattern in the form of 2 dimensions, for example, the floor plane, the ceiling plane, and others, and the shape/form consists of the shape/shape of a volume (3 dimensions), for example, the space in the building. In designing a building, an architect who is an expert in the field of architecture is needed. This study uses a descriptive method to find out how to make design drawing documents by utilizing BIM technology, AutoCAD software, and SketchUp. The results show that BIM technology, AutoCAD software, and Sketch can produce architectural design drawings more efficiently in terms of time, and cost and produce more accurate image quality. From the explanation above, it can be concluded that the results show that the use of BIM technology, AutoCAD software, and sketch-up in architectural design can produce architectural design drawings more efficiently in terms of time, and cost and produce more accurate image quality.
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4 activities which include the preparation of preliminary architectural studies, the design of buildings and their environment, the preservation of buildings and their environment, the design of building layout and their environment, the preparation of technical planning documents; and/or supervision of architectural aspects in the implementation of building construction and its environment (Putra & Ekomadyo, 2022). In addition, architectural practice services can be carried out jointly with other professions. Furthermore, in Chapter III article 5 explains the architect's performance standards which explains that the Architect's Practice service must meet the Architect's performance standards which includes the architect's ability to provide design drawing documents apart from the plan document, calculation of the volume of documents, work plans and conditions and periodic supervision documents (Law of the Republic of Indonesia Number 6 of 2017, 2017).

7 In the past, drawing and designing techniques were done in a manual way which was done by pouring concepts or ideas first on blank paper and then after that it was scratched using pencils, rapids, and other equipment. (AlFajri & Nasution, 2016). Drawing manually is a difficult job and takes a long time because it has to be etched first before the drawing is approved because the drawing really cannot be changed after it is poured into drawing paper (Gerry, 2023).

11 For this reason, it is necessary to know how to make design drawing documents that are by standards and are more efficient in terms of time cost, and accuracy (Wasista et al., 2024). Currently, the architectural modeling program is a tool in architectural design that continues to develop along with the development of technology that can act as a drawing and design tool for architects where this modeling program is based on visual graphics and *Drafting*. (Karista, S, Fadhilah, & Wijayanto, 2022). Architectural modeling programs that are often used in making architectural design drawings are BIM, Autocad, and Sketch Up technology in order to help architects produce design drawings that meet standards from the design stage to the construction and construction stage so that it is more efficient in terms of time, cost and also produces more accurate image quality.

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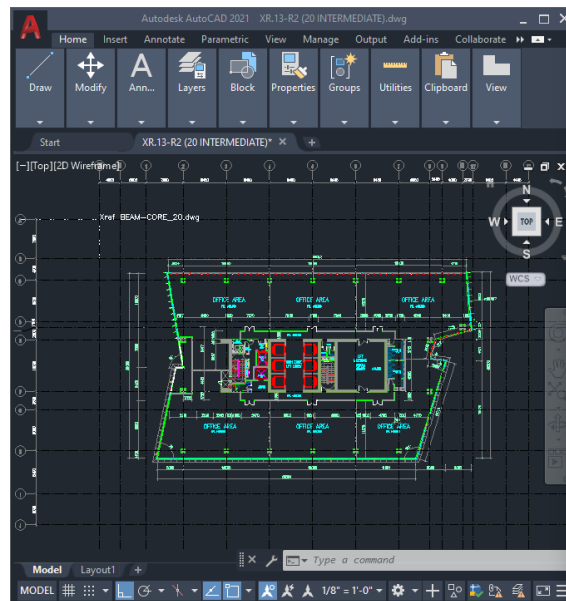


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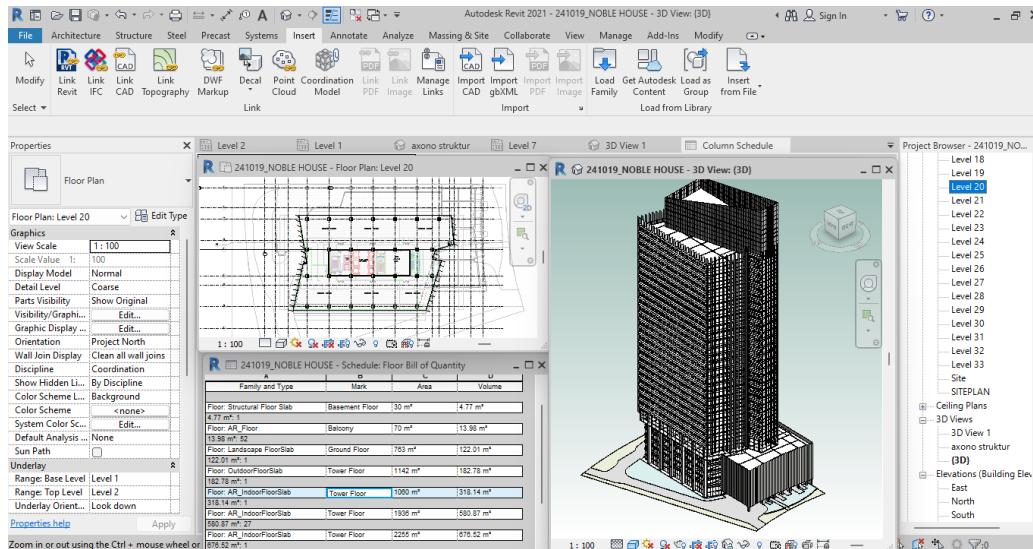


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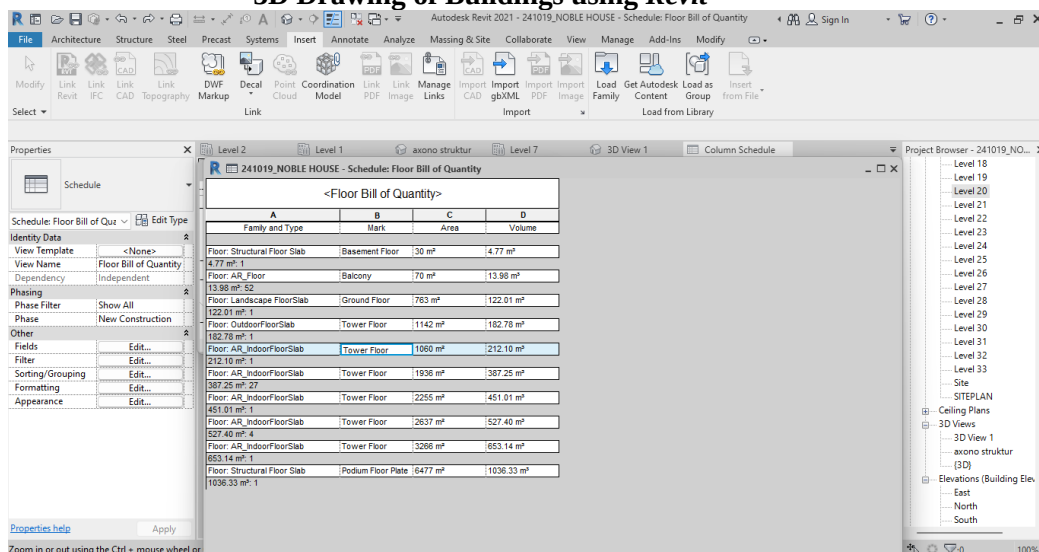


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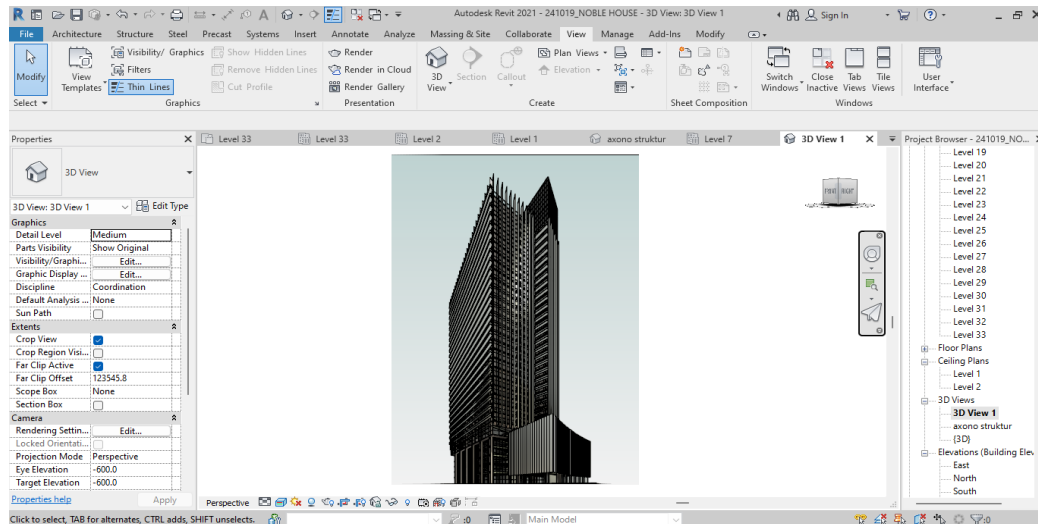


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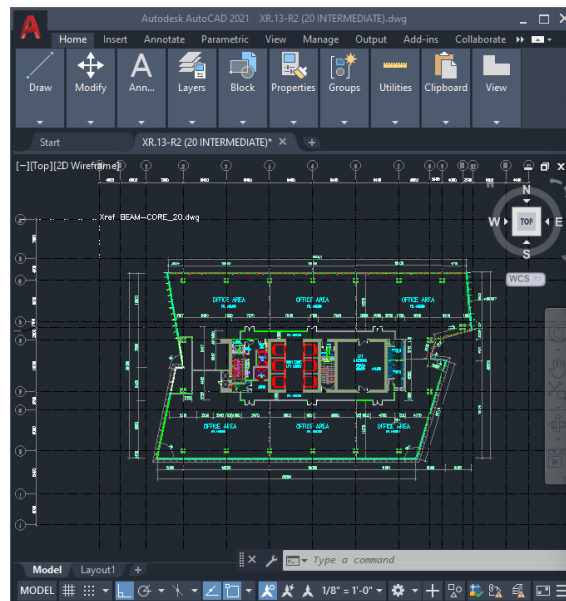


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3D Drawing Buildings using Sketch-Up

3. BIM

Building Information Modeling (BIM) is a process that involves the creation and management of digital information about the physical and functional characteristics of a building and is supported by various tools, technologies, and contracts. (Bhirawa, 2021). Building Information Modeling is a digital representation of the physical and functional characteristics of a facility. BIM can integrate structured and multidisciplinary data to produce a digital representation of a building throughout its lifecycle, from planning and design to construction. BIM is different from architectural drawing tools like AutoCAD, as it allows for the addition of further information (time, cost, manufacturer details, sustainability, maintenance information, etc.) into the building model. BIM also uses intelligent models that can be adapted to changes in design or specifications. BIM has many benefits for architects such as:

- 1) Improve design and construction quality by reducing errors, non-conformities, and change costs.
- 2) Increase efficiency and productivity by accelerating the design and construction process, as well as facilitating collaboration between various parties.
- 3) Improve the performance and sustainability of buildings by analyzing environmental and energy aspects, as well as monitoring the condition and maintenance of buildings.
- 4) Increase customer value and satisfaction by providing accurate and transparent information about buildings.

One of the BIM-based software that will be used to get more effective and efficient results is the Autodesk Revit software. (Muhamad Alimin, Imron Imron, & Muhammad Taulani, 2023).

In the use of Revit, the integration between 2D images and 3D models is very efficient as any changes made to one view will be automatically updated in all other views. For example, if there are revisions in a 2D plan drawing, the 3D model, cutouts, and elevation will automatically adjust without the need to manually redraw. This saves time and reduces the risk of errors, as each element that is changed only needs to be done

Utilization of BIM Technology, Autocad Software, and Sketch Up in Architectural Design Drawings

once and is instantly reflected throughout the project document. This efficiency makes the design and documentation process much faster and more accurate.

Accuracy in Revit is also higher because the calculation of volume, area, and amount of material can be done automatically through the "*Schedule Quantity*" feature. This eliminates the need to move data to Excel as it does in AutoCAD and SketchUp, reducing the risk of errors and speeding up the material estimation process directly from the model.

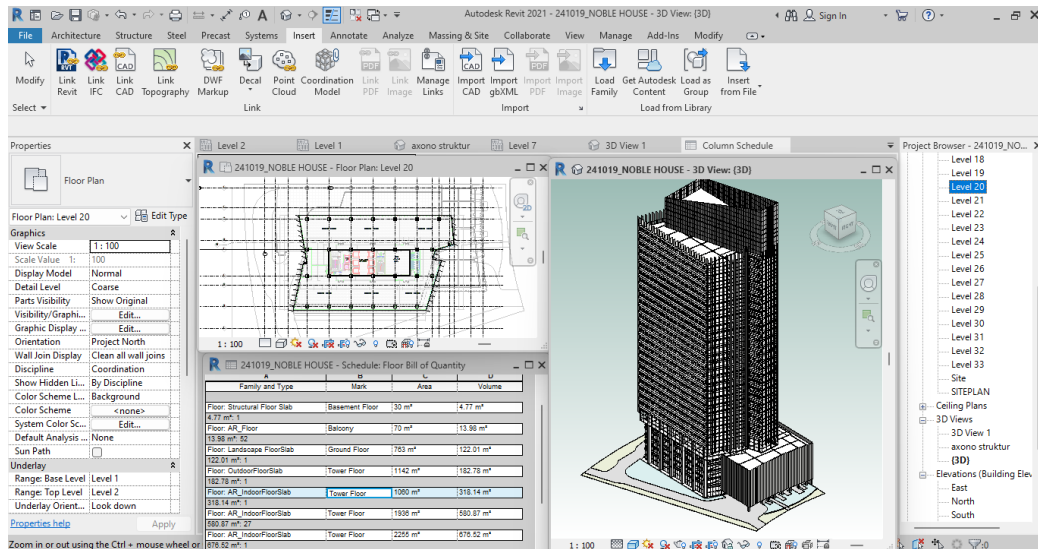


Figure 3
3D Drawing of Buildings using Revit

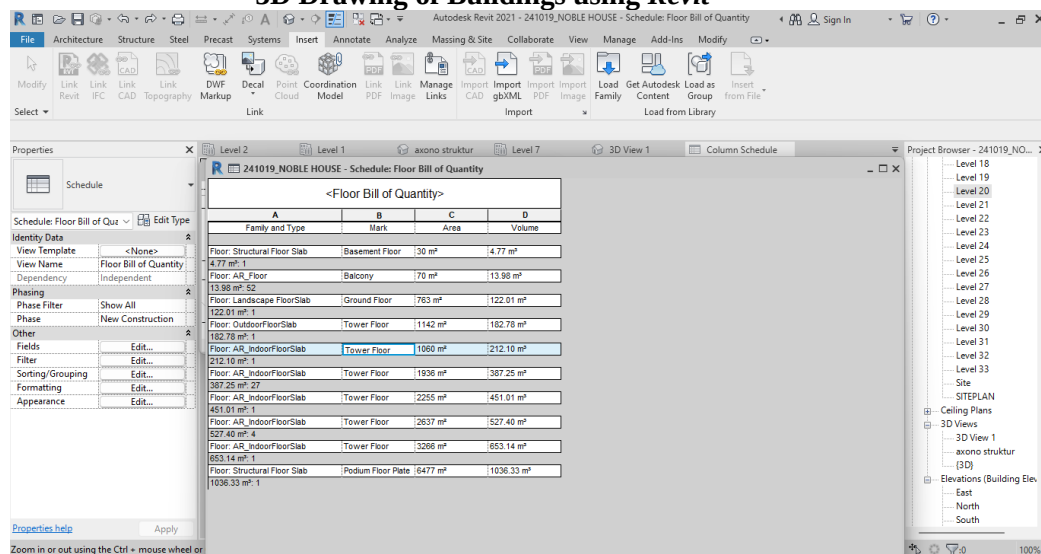


Figure 4
The floor of Bill Quantity on Revit

Visualizations in Revit can be set up with more advanced settings than SketchUp, allowing users to produce better 3D visualizations even if they have not yet reached the rendering stage. Revit offers a variety of options for adjusting lighting, materials, and perspectives, resulting in a more realistic and detailed view of the model without the need for full rendering. This makes it easier for designers to evaluate and improve design elements before moving into the final stage.

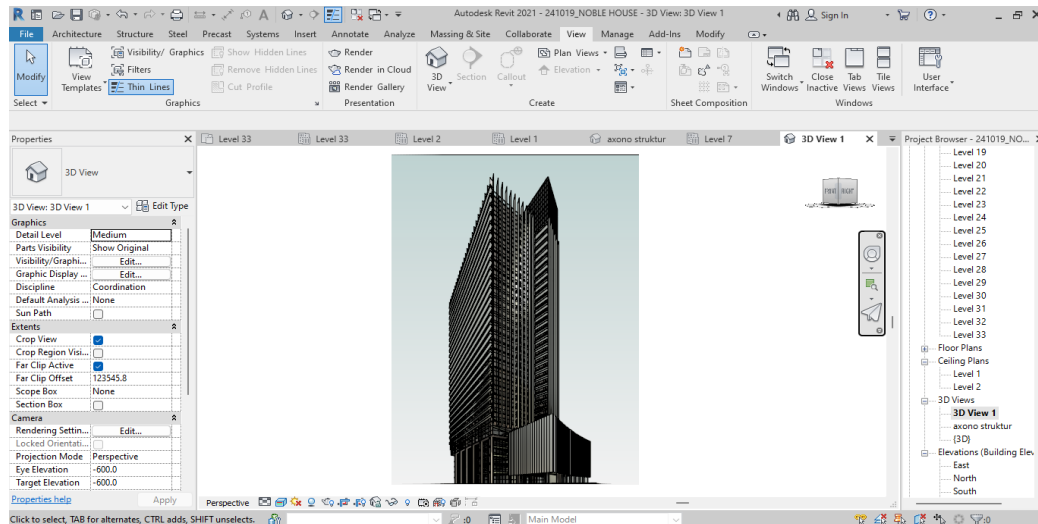


Figure 5
Visualization in Revit

Conclusion

From the explanation above, it can be concluded that the results show that the use of BIM technology, AutoCAD software, and sketch-up in architectural design can produce architectural design drawings more efficiently in terms of time, and cost and produce more accurate image quality.

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