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THE MOST COMPLETE GUIDE FOR 3D VISUALIZATIONS

DEMYSTIFIED 3D VISUALIZATIONS



Introduction



Neven Roginić is the founder of the company Format 3D. His experience with 3D visualizations goes back to his youth and his encounters with the first versions of 3D Studio Max.

After graduating from the Faculty of Civil Engineering in Zagreb and receiving his Master's degree from the Faculty of Agriculture, he was admitted to doctoral studies at the prestigious American MIT.

Over the last twenty years he has worked on numerous challenging architectural projects in Europe, America, Canada and Asia.

Besides his great love for architecture and 3D visualizations, he also successfully runs the digital marketing agency L33T.

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WORDS OF THE AUTHOR

We are witnessing the development of numerous technologies aimed at making architecture, design and construction more time and cost efficient. These cutting-edge solutions are changing the way architects design and opens up new opportunities for them. One of the technologies that is really making a big difference is 3D visualization.

Many of our clients who are already using 3D rendering are not even aware of the full range of possibilities that this technology offers. In our work, we have found that many are unaware of the wide range of 3D options available, the potential quality that a true professional can achieve, or the methods that can positively impact budget while still producing top-notch results.

As a company that has been involved in highquality 3D visualization and animation for years, we know this very well. After years of working with numerous clients, we have developed a special approach to architectural rendering projects. We are always happy to advise our clients and help them find the best solutions for their needs. In fact, we have often heard the phrase, *"I did not even know that was possible!"* so we decided to share some of that knowledge with everyone. That's why we have created this guide to 3D architectural rendering. Here you will find answers to all the important questions about this topic in a concise and clear way.

We guarantee that after reading this guide you will look at visualization projects and advanced marketing activities in a completely different way. You will also learn how to find the perfect 3D artist and how to make the most of working with a 3D visualization studio. Sounds exciting? Then let us dive in and learn all about the magic of 3D visualization!

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WHAT IS ARCHITECTURAL 3D RENDER?



First, let us start with the definition of architectural 3D rendering. Essentially, it is the process of creating photorealistic images of objects and places using specialized computer graphics software. Such images can represent architectural objects and their surroundings. From a small beach house to a high-tech skyscraper, you can visualize anything with computer 3D rendering.

Professionally created 3D views are practically indistinguishable from photographs. You do not have to wait until the project is completed to be photographed. This allows architects to get highquality visualizations for their projects even before construction begins. It is also possible to create both visuals - renderings showing the interior and exterior of the future building. The creation of these visualizations begins with 3D modeling. Here, the 3D artist creates a 3D model of the building based on architectural designs and other references. The finished model is an accurate, photorealistic, three-dimensional representation of an architectural object. Then the 3D designer creates an environment for the model - a 3D scene. This can be a busy street, a country house or a beautiful landscape.

When finished, the 3D designer places the main model in the 3D scene, adjusts any necessary settings and begins 3D rendering. The result is a photorealistic 2D image or a series of 3D images showing a scene from different angles.

3D ARCHITECTURAL RENDERING AND MODELING SERVICE



In this sense, 3D modeling and 3D rendering are two different types of 3D services, although both are part of the same process. This means that they can also be commissioned separately. For example, an architect may already have a finished 3D model of a building, so we can use 3D architectural rendering services to get photorealistic 2D images with this model.



At the same time, only the 3D modeling of the three-dimensional building view can be ordered for design coordination. In this way, the architectural team can see the preliminary result of their work and approve it as such or make corrections. In such cases, the most important thing is technical accuracy, so the models do not need to be very realistic.

SOFTWARE AND FORMATS



Professional 3D visualization requires the use of specialized software. Often 3D designers use several programs throughout the project, combining them as needed.

So what is the best software for 3D architectural rendering? Well, the most popular ones are 3Ds Max, Maya, Rhino, SketchUp, Blender, Cinema 4D, Modo and Revit.

In addition, 3D designers use rendering plugins to achieve the best possible results. The most commonly used add-ons are Corona Renderer for 3Ds Max and V-Ray, which integrates with all the programs mentioned above. Corona and V-Ray photorealistic renderings let you create stunning images with correct geometry, smooth edges and perfect lighting.

Of course, each 3D visualization studio has its own standards and processes. Usually, the software that 3D designers use for certain types of projects is determined by the company's decision and project goals. Different 3D software supports different 3D file formats. Each of them has its own peculiarities and serves a specific purpose. For example, some formats support animation, some support 3D printing, and some are VR-friendly. That is why it is important to learn about these formats before realizing the 3D project.

So why use 3D rendering at all? In short, the introduction of 3D has revolutionized the way architects work on their projects. In particular, it has improved communication with clients, advertising, development and implementation of projects. Sounds too good? Then let us see how architects can use the visualizations generated by 3D rendering in almost every phase of their projects.



• To justify the cost of the project

This is especially important for luxury projects with high budgets. Here, 3D rendering allows architects to justify expensive design decisions, such as using high-end and exclusive materials and finishes. It also shows the lavish atmosphere and emotional appeal of the place, convincing the client that everything is worth the investment.

To sell sophisticated ideas, you need to create stunning visualizations. With a state-of-the-art 3D architectural rendering, it is possible to convey the importance of any design in a compelling and special way. For example, it will be easier to convince a client of the extravagant geometry of a building if they are convinced of how fantastic it looks.

Also, the overall visual style of the project presentation depends largely on its environment. Computer-generated images can include any background, season, time of day, etc. In addition, there are special effects such as light fog over the sunlight or the neon glow of the city at night. These details can help set the tone for the entire project and ultimately wow even the most skeptical clients.

• To improve and facilitate communication



Architectural projects require the participation of a variety of stakeholders. There are investors, architects, engineers, construction workers, brokers and many others. Ideally, everyone should clearly understand how their work fits into the overall project. Therefore, accurate and informative visuals are needed to establish clear communication and avoid costly mistakes.

• To improve the user experience

When working on housing projects directly with owners, one may encounter a certain lack of understanding on the part of the owners. Especially if the architect only uses floor plans and blueprints to communicate his vision. The reality is that most people do not understand them, they can not visualise a finished house by just looking at plans and drawings. As a result, clients often feel excluded from the design and planning process. With photorealistic 3D renderings, it's much easier for an architect to share their vision with the construction team. Instead of blueprints, material samples and sketches to explain the design, the contractor can be shown only 3D images that actually contain the desired result. This way, you do not have to monitor every step of the construction process to make sure every detail is done right.

However, with 3D architectural rendering, the final look of their home can be easily represented. And in a way that requires no special skills to understand! It's like looking at beautiful photos from a trendy lifestyle blog. This way, clients can make all the necessary corrections in advance, approve the project and be 100% sure of the result.

• To create a professional portfolio



It can be a real challenge for architects to create a professional portfolio that showcases all of their best work. This is mainly because architectural projects usually take months or even years to complete and potential clients always want to see examples of successfully implemented concepts before they order something similar. So how do you break this vicious circle? Well, in this case, 3D architectural rendering allows demonstration of each design at its best. That is, from any angle and with the possibility of the desired lighting. It does not matter if it's still under construction or just a concept. In addition, customized color selections and special effects help develop a unique, on-brand impression for the entire portfolio.



Take a look at our portfolio

Our portfolio has been compiled with the aim of presenting selected works from each category of our services. We invite you to click on the image to the left and take a look at our world of 3D visualization.

• To increase the effectiveness of marketing activities



Marketing is an essential part of any business and that includes architecture. A smart advertising strategy will allow you to attract more clients and sign contracts for larger projects. Of course, none of this is possible without high-quality visuals and the best way to get them is to use 3D architectural rendering.

3D is a surefire way to impress potential customers with online and offline advertising. High-quality 3D visualisations can perfectly equip an architecture firms website and make potential clients spend more time on it. There are also social networks as an indispensable tool for modern advertising, through which you can target your communication to the desired audience.

Impressive 3D visuals help build a strong business presence on social media. Here, it makes sense to post on regular platforms like Facebook and Instagram and on specialized platforms like Behance, Houzz, ArchDaily and Architectural Digest. In this way, you can not only reach a larger number of potential customers, but also improve the professional reputation of the company.

MYTHS ABOUT 3D SERVICES



If 3D is so useful, why has not it become the standard in the architectural industry? Because many experts who have worked a certain way for years and decades are skeptical about the introduction of a new technology. Unfortunately, this skepticism eventually turns into myths about 3D and those who believe in these myths miss out on all the great opportunities described above.

So what's the most common myth about using 3D rendering services for architects? Well, some architects worry that it could lead to a lack of client involvement in the design process.

Which ultimately leads to a unsatisfied customer. Fortunately, this is absolutely not the case. To prove this, let us unravel this myth.

So does the use of 3D rendering affect the client actual participation in the design process? If we think about it, quite the opposite. With 3D architectural renderings, the client can immediately see whether he likes the proposed design or not. He can better understand the architect's vision and feels much more involved in the design process, in which he plays a much more significant role. The use of 3D visualisations enables all parties to achieve a comprehensive mutual understanding.

3D PROJECT MAKING PROCESS



3D studios find different ways to effectively manage 3D rendering projects. Smaller companies usually use free cloud solutions, such as project management systems, email communication, cloud storage applications, etc. This is a viable solution when the company has only a small number of projects. But when the number of projects grows, this way of communicating with the client becomes unreliable. For example, important messages can get lost in the crowded inbox. Moreover, it is not very convenient to switch from one application to another to perform different tasks.

Larger companies can usually afford to pay for specialized project management and CRM software that offers useful features such as communication systems and other add-ons. But they do not include financial data tracking or a library of 3D models and these things are essential for 3D visualization projects.



Large companies believe that the most effective solution for communicating with customers is a customized CRM system. This is exactly what we use at Format 3D. Our 3D CRM system is specifically designed to manage all aspects of 3D architectural rendering and allows our clients to start projects by describing their requirements, budget and deadlines. We have also integrated a model base from which clients can choose. Our 3D CRM system also provides all the necessary tools for proper communication. Everyone involved in the project can be contacted directly and quick responses are guaranteed. In addition, the system is perfect for tracking the progress of the project, providing feedback on the results and checking the payment history. This means that our clients can easily find everything they need in one place.

5 RULES OF COMMUNICATION WHEN WORKING WITH 3D STUDIO



RENDERING PROCESS



The project starts when the client contacts the studio and formulates the project brief. The client also provides all necessary references, such as site information, photos, sketches, CAD drawings, material specifications, etc. After that, the 3D artists start the architectural rendering process. The first step is to create a 3D model. Then they select the best viewpoints for the images and add lighting and shading accordingly.

When the model is ready, clients can request updates. This is an essential part of the process and we call it the clay phase. Otherwise, our studio allows 1-2 rounds of corrections at no extra charge. The exact number depends on the project itself and the budget. Any corrections requested after those involved in the project will also increase the cost.

After that, the 3D artist select secondary objects for the scenes, such as decorations, according to the client's specifications. Once everything is in place, they apply photorealistic textures to the models, adjust brightness and create renderings. The completion of this process is called the lowmaterial phase, where we present the final renderings to the client in lower resolution. At this stage, the client also has the opportunity to correct parts of the scene by focusing on changes in materials, lights, and details in the scene. After all comments are incorporated, the renders are basically done and the High Quality Material phase is presented to the client. Then it's on to the postprocessing phase, which includes a series of enhancements such as adjusting brightness and contrast and adding special effects.

Architectural rendering techniques

The working process here can vary, depending on the project's objective, sufficient references and the way 3D visualizations are created. As for the same, there are two approaches. One is to render a project using only 3D models and backgrounds.

Another option is to combine the 3D model with the actual photo taken (insertion, i.e. photo montage). In this case, the 3D artist combines 3D materials with photographs. Usually, a 3D model of a building is incorporated into a photograph as a background. Sometimes it is necessary to refine the photo before creating the scene.

TYPES OF ARCHITECTURAL 3D VISUALIZATIONS

There are different classifications of 3D visualizations according to different criteria. This may seem simple, but many people do not really know all types of views and angles. And this knowledge is key to getting the best out of any 3D project. So learn more about the classifications illustrated by our own work. Just take a few minutes and you'll be ready for the most successful presentation of your concept ever.

CLASSIFICATION # 1 EXTERIOR OR INTERIOR VISUALIZATIONS





The two main types of architectural 3D visualizations are interior and exterior views. Exterior 3D renderings allow the architect to present the building from any angle. For example, there can be a perspective view, a top view, a close-up view, etc. So you can get an idea of how the future building will fit into the environment, how it might look when clad with different materials, and so on.

The interior of the building can be represented with 3D renderings of the interior spaces. They can show the space of any architectural object, whether residential or commercial, in photorealistic quality. Interior renderings are great for showing planning, lighting schemes, materials and textures, furniture and decoration. All these elements help to convey the <u>atmosphere of the place</u>, so that the viewer can not only see it, but also feel it.

CLASSIFICATION # 2 BY TYPE OF ARCHITECTURAL OBJECT

Both external and internal 3D visualization have their subtypes. If we talk about the types of architectural 3D visualizations according to the type of building, there are residential and commercial.

• Residential



This type of 3D rendering includes interior and exterior shots of residential properties of all types, such as apartments, suites, country houses, townhouses and so on. At the same time, the interior design of different rooms has its own specifics. Thus, one of the goals may be to highlight certain features of the room, such as its functionality, planning the detailed look of the room or evoking the atmosphere through the ambience. To achieve this, 3D designers use special sets of angles and views, as well as lighting settings specific to each room.

• Commercial

Commercial 3D renderings are interior and exterior visualisations of non-residential buildings. These include business skyscrapers, warehouses, manufacturing facilities, shopping malls, restaurants and so on. Let us take a closer look at the most common subtypes of commercial 3D renderings by object type.



Office space

In most cases, architects face stiff competition when trying to win a contract for an office interior design project. Therefore, they need to create an impressive design to convince investors that they are the right choice for the job. This is where 3D visualization becomes an important tool. It allows architects to clearly communicate functional solutions and stylistic choices, demonstrate different design options and ultimately win a contract. Moreover, a 3D studio that uses state-of-the-art software, powerful rendering farms and a highly skilled team of designers, can create these renderings in as little as 5 business days.

Restaurant



Images depicting the interior and exterior of the restaurant help architects and designers show all the functional features of the establishment as well as its aesthetics and atmosphere. With architectural 3D renderings, you can easily transfer the benefits of even the most complex design decisions and get their approval.



Retail

3D renderings help showcase retail space design and even show it in action - with merchandise on shelves, customers walking down the aisle and sales associates greeting them. Architects love 3D retail design because it can portray an elegant look, an attractive storefront, a unique atmosphere, etc.

By using 3D rendering, architects can more easily communicate with their clients and thanks to that, if necessary, make the necessary corrections at an early stage of their projects.





There are many criteria that determine the quality of 3D architectural renderings, and they vary for each type. However, there are certain universal rules that apply to both external and internal renderings. First of all, all objects in the scene must look natural. They must have perfect geometry, accurate size and high-resolution photorealistic textures. Then the lighting and shadows should also look realistic. First, the ratios of light and dark parts in the image should be adjusted. Second, the appearance of the object must correlate with the position and settings of the light source within the scene. This means that some surfaces absorb the light, others reflect it, while others let it pass. Just like in the real photo.



For exterior 3D visualizations

As for the quality of the exterior, it is also important that the main object in the image visually dominates the space. This means that the 3D rendering background should only complement it, not compete with it. Both angles and views must not be distorted, as this will make the objects appear disproportionate. Also, the 3D scenes must be consistent down to the smallest detail. For example, the clothing of the people in the image must match the weather and the time of the year.



• For interior 3D visualizations

To get a high-quality 3D view of the interior, you need to make sure that there are no intersections of geometric objects and that none of the interior elements are floating in the air. These are the minimum requirements that a 3D designer must meet. You should also pay attention to the furniture and decor in the scene. Namely, the furniture pieces should be sized according to their realistic proportions. And the decoration should only subtly touch the atmosphere without cluttering the room. In addition, all patterns of objects must be carefully transferred according to their dimensions and shape.



The cost of 3D architectural visualization depends on many factors, including the type of rendering, deadlines, complexity of custom 3D models, number of revisions, etc. Another factor that affects the cost of 3D rendering is the desired result. Namely, the number of renderings and the resolution of the final images. 3D exterior visualizations have their own peculiarities. The first point that determines the price of 3D exterior visualization is the scope of the project. For example, modeling a single house will take much less time than modeling an airport. Then, the surroundings of the main buildings and the number of additional details such as people, cars and pets also contribute to the cost of 3D architectural rendering.

How to save money on any type of 3D architectural visualization



To save money on 3D rendering without sacrificing quality, you need to prepare a detailed project brief and provide enough references such as technical drawings and material samples. This way, the 3D artists can realize the concept faster and more accurately. In addition, the studio has more time to work on a job if it is "on time" and not urgent, while the costs are also reduced.

Selecting simplified intermediate results (tests) helps minimize the number of corrections made during the final rendering of the 3D model. Since the image is more detailed, it takes longer to make changes. The more time it takes to make corrections, the higher the cost.



For this reason, 3D architectural rendering studios offer clay rendering and fast renderings or so-called preliminary designs. This allows architects to coordinate the production of visuals with 3D artists at various stages. If corrections are needed at a certain stage, they can be made quickly and without additional costs.

The main types of preliminary results



- 3D renderings in grayscale show finished interiors and exteriors without applied textures or lighting. They allow architects to test selected 3D models and the overall composition of the scene. If a detail needs to be changed, it is done quickly and does not affect the cost.

- Preliminary designs go further and show lighting and textures that have not yet been perfectly drawn. They allow the architect to see the geometry of the scene and make immediate corrections if something is not up to the technical task.

- Finally, the collection of 3D furniture models allows the designer to select the elements that will fill the space, rather than modeling everything from scratch. Usually, this works perfectly for unimportant elements, like decorations and background fillers. Most importantly, it simplifies the rendering process and makes it less time-consuming.





The duration of an architectural visualization project depends largely on its scale. Small spaces and buildings usually take a few days. Medium-sized projects take an average of 10-15 days. For large projects, such as commercial interiors and exteriors, it can take several weeks. And finally, building an entire city block (neighbourhood) can take several months of work.

However, it is even possible to create an impressive visualization of 3D architecture faster. In fact, with Format 3D, we can deliver projects of any scale in as little as 1 week. This is thanks to our efficient work process and many years of experience in this market. Above all, these factors contribute the most:

1) Our team of professionals. We have a whole community of 3D designers who are always available;

2) Powerful hardware. We have a render farm that has enough computing power to speed up the rendering process many times;

3) Our own collection (base) of **3D** objects. We also have an archive of **3D** models that we have created ourselves.

4) A customized CRM system. Our highly skilled project managers and our customized online CRM system help our clients save hours and even days of time;

5) Highly organized teamwork. When we work on large projects, we divide them into smaller tasks. Then the team leader helps organize their execution as a single process.

ROLES IN PROJECT MANAGEMENT

The team leader, who is either a project manager or a senior 3D specialist, plays one of the key roles in this process. For a complex task, such as visualizing a large block or an entire city, he or she divides the work into 3D designers and then assembles all the components into one scene. The team leader also ensures that visual continuity is maintained throughout all renderings.

Regardless of the scope of work, each 3D architectural rendering team also has a mentor who is responsible for quality control. And there is always a project manager responsible for meeting deadlines and work standards.

SELECTION OF CONTRACTORS



When choosing a 3D visualization company, architects may not know what to look for to find the right one. They must first decide on the type of 3D company. There is a wide range of companies of different sizes on the market. Let us take a look at all the available solutions and weigh all the pros and cons.

• Freelance 3D artists

Some architecture professionals choose to work with freelancers. While this seems like an easy solution, there is no guarantee that the work will be done on time. Moreover, freelance 3D artists cannot easily manage large projects due to lack of time and technical capacity.

In addition, when working with freelancers, consistent render quality cannot always be expected. Of course, there are highly skilled 3D artists who go freelance, but it's incredibly difficult to find them without a lot of effort. Also, the cost of 3D rendering per hour is quite high for such artists, so there are no savings for them anyway. There is also something called project and client responsibility. Freelancers quickly realize that they need a steady source of income and opt for some form of employment or collaboration with a limited number of clients.

Small studios

Then there are small 3D architectural visualization companies with up to 10 employees or more. These can offer strong guarantees in terms of turnaround time and quality of work. However, they will not be able to provide visualizations for large projects. Besides, famous boutique studios are usually booked months in advance, because professional 3D architectural rendering takes time.

• Large 3D visualization companies

Finally, an architect may choose to work with a large firm. In general, this is the optimal choice for projects of any size. There are enough top experts for any project - from visualizing a country house to designing an entire city. Also, large 3D companies have access to rendering farms, which helps speed up the delivery of results. This is something a freelancer will charge extra for.

Large studios not only have top-notch human and technical resources, but also always-available customer service. This makes them perfect long-term business partners. An architect can work with the same 3D architectural rendering team over and over again, saving a lot of time on explanations, because 3D artists know the preferences and specifics of each regular client's work.

Moreover, large companies offer a wide range of 3D services, such as visualizations, animations, custom furniture modeling, etc. This basically means that an architect can get everything he needs in one place. And with all this, the client does not have to worry about a single aspect of the process.

The beginning of cooperation

After you have selected a few architectural rendering companies, it's time to take a look at their websites. By looking at their portfolios, you can easily determine if the quality of their work is good enough. Special attention should be paid to the lighting, composition and quality of the 3D model. Also, reviewing the portfolio will help you better understand the specialization of the company. For example, if there are several beautiful renderings of skyscrapers, it is quite safe to order another one.

Then the architect contacts the selected companies. At this point, it is important to ask the right questions to make sure everything goes as expected. First of all, one should ask about the cost of 3D rendering, how exactly the project cost is calculated and how much time is needed for a particular project. Professional studies are always ready to give definitive answers to such questions and also provide a preliminary quote. They also warn and give their opinion on things that might cause delays or cost increases.

Then it can be helpful to ask about the company's experience with specific projects and the market in general. They should be willing to give their recommendations and show relevant cases if a potential client is interested. Finally, it is also good to find out how many have 3D architectural rendering experts and what software they use.

CREATING A PROJECT BRIEF



To obtain flawless 3D renderings, it is essential to create a comprehensive technical task, also called a project task. This is a collection of all drawings, documents and visual references needed for 3D design visualization. For 3D visualization of interiors, the document should contain information about the functional zoning of the building and stylistic references. The latter are extremely important, because they show in a 3D study exactly how the client's ideas and concepts should be implemented.



For 3D exterior visualizations, the architect must provide a little more information. Namely, the site details, facade designs, floor plans, roof design, drawings of complex assemblies, materials and stylistic references. This way, the architect gets the most accurate representation of his ideas without costly corrections during the process.



Another important item to include in the project task is the camera angle settings. If you have a Revit or Sketchup model, you can easily set the desired angles directly on the model.





Another convenient way to display the desired exterior or interior views is to specify them on the design.

For external rendering, the desired camera angle can also be displayed by sending an elevation that is visualized in 3D.



CREATING A PROJECT BRIEF

If the architect does not have a 3D model, plans or cross-sections, he can simply draw the required views by hand.



Complete the project brief to evaluate your project

Download the project brief



Finally, let us return to the reasons why industry professionals use architectural 3D visualization services in the first place. What are the results of a successful collaboration with a 3D visualization studio? Well, let us see.

Successful presentation



One of the main reasons why architects use 3D rendering services is the need to create an impressive presentation of the project. This is because photorealistic images of the concept are the best way to convey information to clients. This way, architects, their clients and others involved in the project can "speak the same language" and easily achieve mutual understanding.

Leading architecture firms and design studios ensure the approval of their concepts with the help of 3D renderings. And we are happy to help them with this. But do not just rely on our word - see for yourself. That's why we would like to share with you some of the best projects where the realistic 3D render architectures we created in Format 3D helped our clients present, approve and realize their spectacular projects.

Our visualizations of the commercial complex on City Island helped the investor make a number of architectural and design decisions that significantly influenced the final look. In this project, we captured the interior and exterior of the buildings. The visualization project was completed in record time and the complex is currently under construction.

Again, our 3D visualization of the exterior and interior contributed to the realization at the Dolabella Hights project in Cavtat near Dubrovnik. We look forward to visiting the built facilities.

