5 essential benefits of a BIM to immersive visualization workflow
Building Information Modeling (BIM) has transformed the way architects design buildings. Information-rich 3D models allow architects to explore their designs in unprecedented ways, and get a much more accurate view of the final product, even in the earliest stages of design.

Since the advent of BIM, architects have been able to produce high quality renderings and walkthroughs as a by-product of their design models, and rendering capabilities have improved over time to allow designers to more easily achieve near-photorealistic visualizations. Cloud-based rendering capabilities have made visualizations even more accessible to architects, speeding processing time from hours to minutes and alleviating the need for costly hardware.
Still, while static renderings and walkthroughs are effective for showing designs to architects and stakeholders, they are limited in their ability to communicate an experiential view of the final product.

Technology innovation has changed the game for architects. Now, you have the ability to extend your BIM workflows to create realistic experiences both on your desktop and in virtual reality (VR) that will help you communicate design intent, and help you and your client to make more informed decisions faster and with greater confidence.

“We see the discussions of a design review go in a totally different direction than what our customers say when reviewing plans, static renderings, or an animated fly-through. All of a sudden they are talking about spatial relationships and function... It is a great thing!”

– Taylor Cupp, Technologist, Mortenson Construction
Design visualization innovations

Visualization innovation typically falls into four categories: mixed reality (MR), virtual reality (VR), augmented reality (AR), and immersive visualization.

🔗 Mixed reality

Mixed reality mixes aspects of VR, AR, and immersive visualization by overlaying virtual objects in the context of the real world. For example, two architects can connect in a virtual world and collaborate on a virtual building in a real-world setting.

🔗 Virtual reality

Virtual reality is a fully immersive, highly realistic experience where the user wears head-mounted displays (HMDs) that close them off from the outside world. With technology like the Oculus Rift™ or HTC VIVE™, architects and stakeholders can navigate through a virtual building in real time.

🔗 Augmented reality

Augmented reality animates data over a real-world scene and serves up contextual information through smaller devices like a phone, tablet, or Microsoft Hololens™. This technology can be used to help two remote engineers collaborate on a repair.

🔗 Immersive visualization

Immersive visualization can be applied to MR - including VR and AR - to create experiences that make the user feel surrounded by the experience. This can be experienced on desktop or tablet without the use of HMDs as non-immersive MR, or experienced with the use of HMDs for fully immersive MR. Users can explore a 3D design model from every viewpoint and angle before moving into construction.
70% of global architect respondents use virtualization technology in production—or are planning to.

77% of global architect respondents experiment with visualization technology or are planning to experiment with it.

By 2020, the VR, AR and Mixed Reality market will reach $150 billion.

*Source: http://www.cgarchitect.com/2016/07/survey-results-vr-usage-in-arch-viz*
Immersive visualization is a game changer for architects

Of all these visualization tools, immersive visualization is among the most accessible to architects because it does not require special hardware or training, it’s intuitive, and it’s easy to integrate into the design process.

It gives you, your clients, and extended project stakeholders the ability to explore a design in a uniquely engaging way—by stepping into the design itself on your desktop or in VR.

Test new ideas, validate decisions, and adjust designs with stakeholders—before construction begins—by easily moving between your 3D model and a deeply immersive visualization.

Immersive visualization is:

**Experiential** – Enable stakeholders to see and experience your design

**Powerful** – Validate design decisions and check for errors before construction

**Full scale** – See the details or just the big picture

**Real time** – Make changes in your BIM model and see those changes reflected in your visualization

**Interactive** – Animate objects in your design to make the experience more realistic

**Immersive** – Deliver a powerful presentation experience for clients and stakeholders

**Intuitive** – Simple to use and easy to understand
5 essential benefits of a BIM to immersive visualization workflow
Experience your 3D model

It’s easy to extend your workflows from BIM to immersive visualization. Many tools offer a simple workflow from a 3D modeling tool, like Autodesk® Revit®, that serves as a hub of information to document everything from schematic massing to construction detail.

Many immersive visualization tools plug directly into your 3D model, providing fast, immersive access to the project design to anyone, at any time, and on any device. Leverage your existing BIM data, and take your visualization experience to full scale.

You can access your BIM data while exploring your immersive visualization. Click on a light fixture to access the metadata and analyze factors like cost and material type to facilitate informed design review discussions with stakeholders, enabling both you and your client to rapidly make effective decisions and develop the design in real time.
Enhance collaboration

Immersive visualization tools enable you, your project stakeholders, and your clients to explore a design from every angle. Rather than looking at a building design on a 2D rendering, you can walk through it as if you were there and experience the different aspects of that design in a high quality visualization.

Bring in the extended design team—architects, contractors, engineers, building officials, prospective tenants, and owners—to review the model from multiple viewpoints to gain a deeper understanding of the design intent and to catch errors.

Experiencing the design from shared points of view empowers stakeholders to better understand and refine design decisions. By reviewing the design in context, the extended team can discuss all elements of your BIM model—from structure to electrical and plumbing—but in a much more realistic way.

Right from the start, you can ensure that project stakeholders are well aligned, and that everyone’s view and understanding of the design is the same.
Improve client satisfaction

Communicate design intent early in the design process in a compelling way. 2D drawings and scaled-down 3D models can be confusing to the untrained eye. Much is left for interpretation, which means much is also open for misinterpretation. But moving from BIM to immersive visualization helps you to empower your clients to provide valuable feedback with an easy-to-understand visualization that they can navigate intuitively and at their own pace.

When a client fully understands the design, they can provide critical feedback in advance of construction, ensuring that their expectations and requirements are aligned with the final product.

“We used to have to imagine the outcome and persuade departments that needed to understand the design, such as the construction department and operations in charge. I am hoping that we will be able to build consensus by sharing realistic images using VR in the future.”

– Mayu Takashima, Starbucks Coffee Japan
Explore your BIM data

Immersive visualization tools allow architects to make quick iterations in their BIM model and immediately see the effects of their decision in a realistic context. Architects can validate their decisions and observe how small changes affect the overall look and feel of their design.

By experiencing your BIM data in an immersive visual environment, you can test the functionality of a space to more clearly understand how the future occupant’s day-to-day routine might be helped, or potentially impeded by design elements and design decisions.

“Visualization matters. It’s really, really critical that people understand what they’re looking at and can contribute meaningfully to the dialogue. You want experts and non-experts to be able to derive actionable insight from what they’re seeing.”

– Matthew Krissel, Partner, KieranTimberlake
Make virtual reality real

Immersive visualization tools also allow you to take your design into virtual reality with VR hardware. Experience your BIM model in a 3D environment without the restrictions of peering into a 2D computer screen at a 3D world, and actually walk around and use the design space.

You can move around the scene using room-scale VR to get a full sense and understanding of the space, making the virtual environment seem more real than a self-contained environment with you on the outside looking in.

Tools like Autodesk® Revit® Live allow you to easily move from BIM to VR, in just two mouse-clicks. Maintain the integrity of your BIM data, with the added benefit of seeing the space before it’s actually built to understand how all of the design elements will come together.

“[Architects will] see something in virtual reality that makes them say, ‘Oh I didn’t realize that was going to come out like that. Let’s go to the plans or the sections and see how this is actually coming together.’ It really becomes an integrated and seamless part of the review process.”

– Efrie Friedlander, Architectural Researcher, KieranTimberlake
Revit Live is an immersive visualization cloud service that enables architects to turn their Autodesk® Revit® into interactive experiences on both their desktop and in VR.

The workflow between Revit and Revit Live is remarkably simple. The Revit Live service is accessible right from within Revit—no training or assistance from a visualization specialist required. In a single click, models are sent to the cloud for rapid processing.

Valuable data from your Revit model is automatically transferred and optimized in Revit Live. As you explore the model, you can interact with BIM data as doors open, dynamic objects move, and lights automatically turn on.

Using editing tools, you can customize the visualization for client review by defining navigation points, adjusting daylighting, and applying a render style for presentations. Navigate through your model on either desktop or mobile devices and share your designs with stakeholders. You can receive instant feedback from clients and make changes in your Revit model in real time to reflect your client’s vision.

You can also take your Revit Live visualization into virtual reality with the help of a VR headset for an even more realistic experience. Easily connect your data to Autodesk® 3ds Max® Interactive, a feature of the popular rendering and animation software 3ds Max, to enhance your VR experience with additional content and interactivity.

Get access to Revit, Revit Live, and 3ds Max in the Autodesk® Architecture, Engineering & Construction Collection. With a comprehensive set of integrated tools, you can easily extend the power of BIM from design to visualization with virtual reality.
Transform your design process

Any architect at any skill level can use immersive visualization tools to extend BIM workflows and improve their design process, create better designs, and improve client satisfaction.

If your firm has already made the investment in BIM, it’s time to extend the value of your workflow and incorporate immersive visualization into your design process.

Learn how you can try VR on your next design project:

AUTODESK.COM/IMMERSIVE-TRY-VR

Download a free 30-day trial of Revit Live and try VR on your next design
AUTODESK.COM/PRODUCTS/REVIT-LIVE/FREE-TRIAL