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How visualization enables performance-based design

by Matthew Edmonds In conversation with Page, now Stantec Staff

Visualization has come a long way from glossy stills tacked onto proposal boards. At Page, now Stantec, it lives in a dedicated Tech Lab —an experimental space where game engines, virtual reality, and data-rich simulations help architects, clients, and communities make faster, smarter decisions. To understand why that matters and where it's headed, Page's editorial staff sat down with the Tech Lab's director, Matt Edmonds, who's guiding the lab's leap from two-dimensional renders to project-shaping insight.

This conversation has been edited for clarity and length.

Some people believe that visualization means producing an attractive rendering to impress a client. Why has Page created a tech lab, and what does it do for clients?

ME: The Tech Lab was created to experiment with and push new tools to take visualization beyond the style and quality of what we might consider mainstream. It lets us address challenges in ways that other methods overlook. Sure, we can generate highly refined still renderings or build a beautiful cinematic flythrough, but just as often, we're creating animated diagrams that clarify a design concept or test important sightlines. By having the freedom to choose the right tool, we can develop unique visualizations of any type that help teams and clients address problems more comprehensively

In our conversations, you're particularly excited about animations and movement. How does an animated sequence

beat a high-resolution still?

ME: A still frame is one single vantage point. Buildings are three-dimensional, and people experience them in many different ways. New angles reveal radically different perspectives, and I have seen clients' eyes widen—the lightbulb goes off—because they notice something they couldn't before.

Do you have an example where that nuance actually changed a project outcome?

ME: A couple of years ago, we were interviewing for a veterinary diagnostic lab project and presenting a virtual reality model we created to let the client experience the layout of each space and evaluate the scale and configuration. The lead scientist, who handles 1,500-pound animals, virtually walked the space and immediately realized the room was too small to do her job, in a way that a two-dimensional view couldn't capture. The facilities staff saw the problem and expanded her area and the budget. We were awarded the project in part because we demonstrated how our visualization tools could engage with the users to inform design and ensure success. This was something our competitors couldn't offer.

What types of visuals can the Tech Lab create?

ME: We work in real-time rendering platforms—my favorite is Unreal Engine—so the same file can

yield a photoreal still, a flythrough animation, a clickable game world, a headset-ready VR scene, or even an augmented reality (AR) overlay that floats a future building on top of the actual site. That flexibility means we can pivot from design workshop to marketing rollout without rebuilding the model.

What do you need from the project team to start? Particular parameters or metrics?

ME: Actually, the most important thing we need is the story. We need project teams to dig into what they want to communicate, so we can determine what visuals will work best. And it can be as simple or as detailed as they can provide, but the more detailed, the better.In one instance, a designer provided us with a very detailed script of what he was showing to a client. We developed an animation with synchronized timing so that the timing of the video content matched his words down to the second. The client was able to see, with their own eyes, exactly what the designer described.

At what point in a project is visualization most useful or valuable?

ME: Anywhere—from pre-award interviews right up to marketing films after ribbon-cutting. Universities use our flyovers to raise donor funds; developers use configurators to presell units. We have worked with clients who need animated master plans to secure approvals from their boards.

Many of our clients have sustainability goals, and I’m curious how visualization can help them achieve them.

ME: Page is lucky to have an entire Building Sciences team, and the tech lab works with them frequently. For example, we can visualize engineering simulations in more realistic representations. Animated solar paths or wind-flow simulations turn abstract metrics into evidence that stakeholders can understand. When a client sees how angling a canopy trims the glare in the office commons, the conversation moves from theory to reality.

You’ve talked about the impact of better computation chips and graphics. What’s the impact there?

ME: More processing power lets us build larger, higher-fidelity models. We commonly model very large context environments—our largest being 1,800 square kilometers of background terrain, so the client could judge every mountain view from any window. Ultimately, the richer the context, the firmer the design decisions. All of this leads to exceptional analysis and incredible real-time diagnosis.

It’s 2025, meaning there must be a question about AI. How do you see AI impacting visualization in the AEC space in the foreseeable future?

ME: Currently, AI excels at fiction; our task is to use it to enhance reality. We’re testing models that upscale low-resolution context photography into detailed backdrops when drones aren’t an option. Generative tools already save us hours populating scenes with context-appropriate vegetation and entourage. As GPUs and trained models get faster, AI will eliminate repetitive tasks so we can stay focused on story, craft, and the decisions that move a project forward.

You also mentioned VR and AR. How are those approaches going to impact design in the future?

ME: With headset-based technology, we’re able to represent space at a depth, scale, and volume that no drawing can match—and the technology keeps improving year after year. Simulating a project in VR allows a client to drag the sun across the sky or swap one façade option for another in real time at full scale. It means that clients are making choices with their whole body, not just their eyes. That kind of immersed decision-making allows designers and clients the chance to be more thoughtful and creative, and offers them more security, knowing the design will match reality.

Learn more about Page, now Stantec's Tech Lab here.