

Clark Nexsen

Clark Nexsen designs government, commercial, retail, industrial and academic facilities. Its work goes beyond architecture to all aspects of design, including planning, interior design and engineering services.

As a 3D architectural illustrator Gene Corbell averages about 60 test renderings a week and three to four final renderings a month of buildings and interiors under design by Clark Nexsen, a 270-person full-service architecture, engineering and interior design firm headquartered in Norfolk, Va. Corbell works with 53 architects and architectural interns throughout the firm's five offices.

"Sometimes clients and even architects have a hard time visualizing the final building or interior space by viewing the plans and concept sketches," says Corbell. "A photorealistic rendering of the design with all of the materials and lighting helps us with our visual communication by showing how the plans are developing. It most often leads to that 'aha' moment where all of the ideas come together in the everyone's mind."

Corbell uses drawings or plans as the basis for building models in Autodesk's AutoCAD software. The models contain the 3D geometry of the buildings or interior space, including fixtures for exterior work and furniture for interior environments. Completed models are exported to Autodesk VIZ, where basic lighting, textures and extras such as people, trees and cars are added.

In the past, Corbell used VIZ's renderer to create effects such as shadows, reflections in glass, natural lighting to show the time of day, and textures for details such as pavement, stonework, grass and fabric. Render times using VIZ were too long for Corbell's needs with images often having to be rendered overnight – no good when he often had to render an image several times to get the realistic results that Clark Nexsen requires.



In his search for a new rendering solution, Corbell came across an article about ARTVPS' RenderDrive, a hardware system that provides accelerated ray tracing based on the physics of the real world. The system can provide full-frame previews in seconds, which speeds up iterations for tasks such as lighting set-up, shot composition and material mapping. With dedicated ray-tracing chips, the new system can handle realistic effects that are traditionally expensive and time-consuming to calculate, including multiple area lights, accurate motion blur and depth of field, secondary illumination, and physically based materials, lighting and camera properties. The RenderPipe plug in allows Corbell to access RenderDrive directly from within the VIZ graphical user interface.

According to Corbell, a moderate-sized image of the outside of a building that sometimes took up to 18 hours to render with VIZ could be completed in one to two hours with RenderDrive. As well faster rendering times Renderdrive gives him the flexibility of keeping his workstation free. "Since the RenderDrive is independent of my machine, I can work on other projects during the rendering," says Corbell. "I can also preview an image and make changes as needed without going through repeated long rendering processes."

Real-world materials

The new rendering capabilities have enabled Corbell to more realistically depict actual materials that will be used in a project.

"I have always used scanned textures and applied them to the models – from building materials for exteriors to fabric and paint swatches for interior projects," says Corbell. "But with the RenderDrive, the effects of the materials create a more realistic image; you can get a sense of the true texture of the material."

As the leading 3D illustrator at Clark Nexsen headquarters, Corbell is always going to be under pressure, but increased rendering performance provides a degree of comfort. "A great rendering tool doesn't eliminate tight deadlines," says Corbell, "but it helps me meet them without sacrificing the high level of detail our architects and clients expect."