Full-size photorealistic mural

The Next Dimension

Innovative Design Using 3D Visual Simulation

When William Beaumont Hospital in Royal Oak, Michigan needed something extraordinary for an important donor recognition event, they turned to SSOE-Troy. Using innovative 3D visual simulation, SSOE created a full-size photorealistic mural of Beaumont's new Ministrelli Women's Heart Center. Unlike 2D plans or artist renderings, SSOE's 3D mural created an easily understood vision of the Center that allowed them to gain a feel for the area's look, size, and shape before it was actually built.

We live and dream in three dimensions. 3D visual simulation, as an interface between real-life and our computer-created realities, is becoming an increasingly important tool in building and space design. Its power lies in its ability to help users visualize abstract design features.

Support can be gained early from users, investors, and local governments as visual simulation enables them to actively participate in the design and review process. It is also an affordable tool that can be used on all projects regardless of size or budget and during all stages of the design process. 3D visual simulation can range from simple massing with little detail and texture to complex and highly realistic images and models. It provides a common visual language for all stakeholders in a compelling and interactive environment.

3D visual simulation creates the potential to streamline all phases of a project from programming to construction. Design problems are detected early, concepts are understood sooner, and development costs are reduced before construction begins.

During programming, an architect traditionally works with hand-drawn adjacency diagrams to convey space relationships. By creating a real-time 3D model from program requirements, SSOE can discuss with the client "what-if" scenarios regarding space relationships, scale, circulation, and design, and enables users to critique the actual layout and function

of the space in the earliest phases of the project. Changes from these discussions can be quickly implemented into the model and then viewed interactively, resulting in a shorter design time and, ultimately, lower project costs. The model may be viewed in sequence or simultaneously to compare and contrast the different design ideas.

As the project moves forward in design, the 3D model is further developed to include accurate textures, finishes, furniture, and lighting. Floor plans and elevations are easily understood. The client "walks" around and through the building from a user point of view and experiences the space from literally every possible angle. At any time they can stop, rotate or zoom in on details. Errors detected in the plans at this stage, as opposed to during physical construction, have huge potential cost savings.

Moreover, much like a multi-layered set of CAD drawings, the 3D model serves as a communication tool between architectural and engineering disciplines to understand how electrical, plumbing, mechanical, and structural elements all relate to each other.

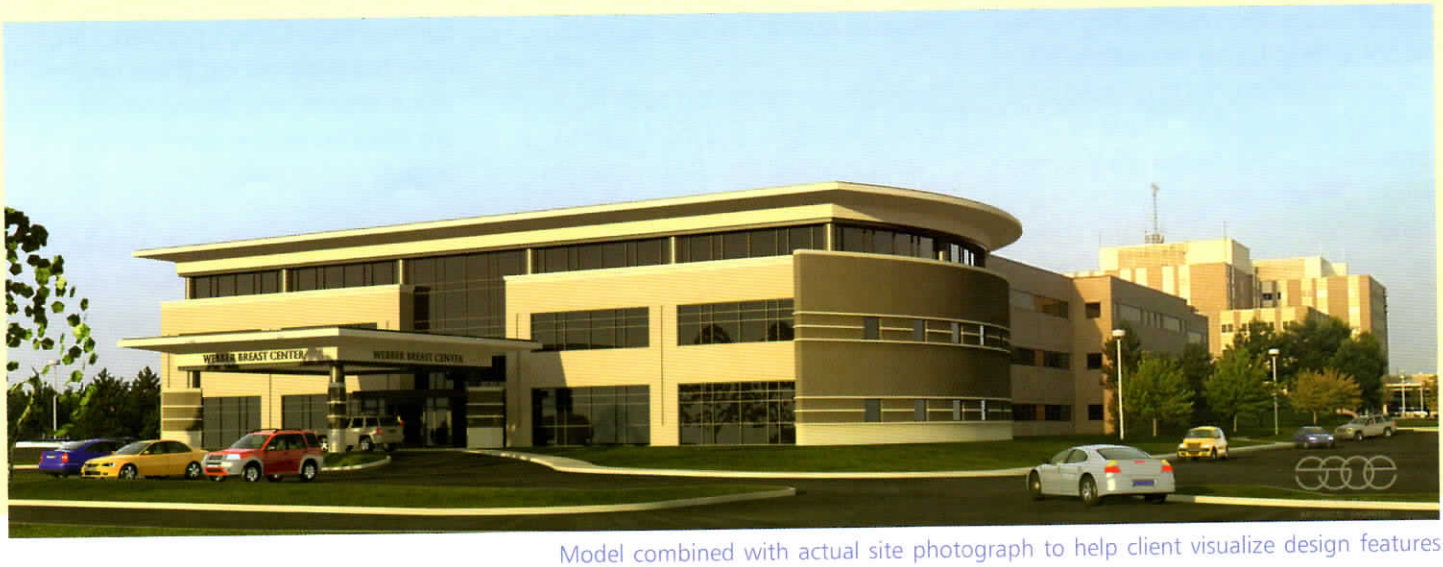
3D visual simulation is a powerful tool to communicate with and unite the project team in understanding the project's program and image. 3D visual simulation is revolutionizing how architects and engineers design buildings. As a pioneer in the use of CAD when it was first introduced, SSOE is at the forefront again today with 3D visual simulation – the next dimension.•

Day and night interior lighting study

Sunlight

Night

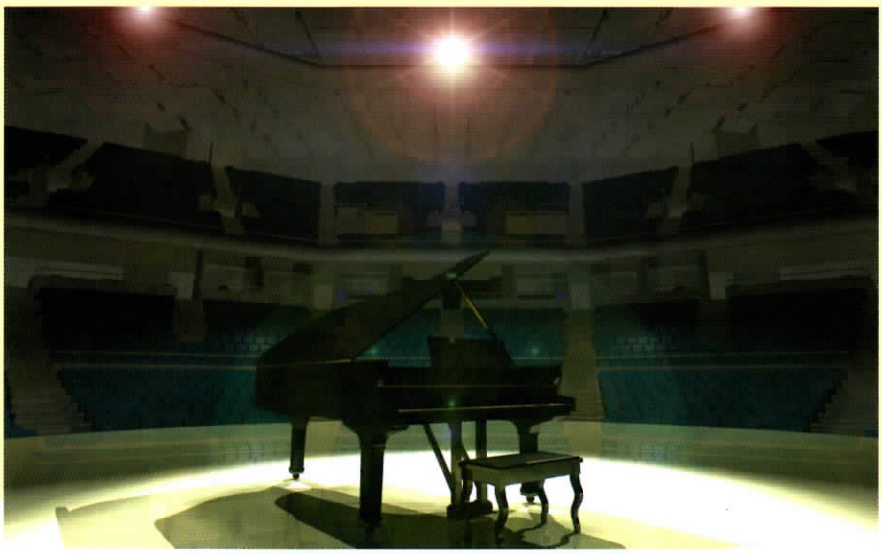
The client "walks" around and through the building from a user point of view and experiences the space from literally every possible angle.



Model combined with actual site photograph to help client visualize design features

Complex and highly-realistic model

Visual simulation can be used on all projects regardless of size or budget



"What-if" scenario regarding space relationships and lighting

project highlights

Benefits of 3D Visual Simulation

- Help users see what they're getting
- Help users sell the project
- Provides concise information and reduces errors
- Speeds up project delivery and saves money
- Enables entire team to think in three dimensions
- Highlights potential problems early in the design process
- Provides continuous design feedback
- Accelerates design cycle time
- Focuses on problem solving
- Produces less change orders