

The Big Idea



How can architecture students walk through their buildings before groundbreaking?

With high-tech vision glasses and a comfort zone in virtual reality.

By CHIP MINTY

When Tammy McCuen's construction science Building Information Modeling (BIM) class completes its review of building design projects this fall, they will do what no other University of Oklahoma College of Architecture students have done before.

They will load their designs into a computer system, then step inside the buildings to have a look around. Think PlayStation or Xbox, but about 10 times larger and with a dash of reality.

McCuen, the Robert E. Busch Professor in OU's Haskell and Irene Lemon Construction Science Division, is a pioneer in the field of BIM/VIZ, short for Building Information Modeling and Visualization. She started working with the technology shortly before President Bill Clinton moved into the White House. Since then, she has watched it evolve into applied technology for almost every field associated with architecture, construction, urban planning and landscape and interior design.

OU's BIM/VIZ laboratory is about the size of a normal classroom and is located in the basement of Gould Hall on the Norman campus. Beyond that, it is anything but normal. The room is surrounded by black walls, and the lab's focal point is a 100-inch HD screen. The room is equipped with 3-D glasses and headgear attached to curious-looking sensors and transmitters.

Technology adapted from the electronic gaming industry is what makes it possible to peer around virtual corners, walk down virtual hallways and examine virtual ceilings, windows and doors with perception that borders on tactile.

McCuen's construction science students will be the first to use the \$175,000 BIM/VIZ lab this fall, but soon it also will be part of the curriculum for students in OU's architecture and interior design programs.

McCuen says the system makes it easier for students to examine the layout of building designs and systems to determine if they actually work because the simulated, immersive environments help them experience the spaces created.

Student teams will use the lab to facilitate the type of col-

laborative process that is a staple in the construction industry. Examining designs and spotting problems prior to construction teaches them multiple lessons. Students become better designers and, just as important, learn the value in identifying design flaws before they become faults that require costly reconstruction.

BIM/VIZ is not a standard in the industry yet, but McCuen says it is an increasingly important tool, allowing architects, interior designers, general contractors and owners to avoid thousands of dollars in cost overruns caused by design problems that could have been detected before construction.

While many private clients do not ask for it, BIM/VIZ is a requirement for most federal agencies, universities, hospitals and large airports planning new construction or expansion projects.


"It makes so much sense to have all of that information in front of you when you are analyzing a plan and making decisions," she says.

College of Architecture Interim Dean Hans Butzer says BIM/VIZ is primarily used on vary large projects in big cities around the globe. The technology is not yet prominent in Oklahoma, however, Butzer hopes the university can change that.

"We hope this will help Oklahoma companies see the value and upgrade their technology to improve services to their clients," says Butzer. "We see this version of the BIM/VIZ lab as a starting point. The mission of the university is to meet the needs of our students, but our college also strives to meet the needs of professionals, and the BIM/VIZ lab is one way for us to keep up, and at some level, help lead."

Tulsa-based Flintco Constructive Solutions fully embraced BIM/VIZ in 2008 when the company hired Bobby Goldsberry as its BIM manager. Flintco's prominent Oklahoma projects include Devon Energy Center, the Oklahoma State Capitol dome addition and the Gaylord Family- Oklahoma Memorial Stadium expansion project.

Soon, BIM/VIZ will be a standard technology across the industry, and that is why OU's new lab is so important for students. It is changing the way the industry prepares for projects, Goldsberry says. For example, owners can forego the cost

A man with dark hair and a beard is wearing large, black VR goggles. He is looking forward, and his eyes are visible through the lenses. The background is a vibrant, colorful virtual cityscape with various buildings, streets, and greenery. The scene is brightly lit, suggesting a sunny day in the virtual world.

of building life-size prototypes to determine if they like the design of an interior space. Instead, they can look at the space through BIM/VIZ, turn on lights, inspect furnishings, whatever they want to do. There are limitations, but the technology can speed up the process of inspecting demonstration prototypes, and that saves time and money.

“The millennials already have it embedded in them because of PlayStation and Xbox,” Goldsbery says.

After nearly 25 years in the making, the time is right for today’s students to embrace this advancement. Considering the emerging workforce grew up with Grand Theft Auto, the difference between driving around Los Santos and walking in a virtual world of their creation is as easy as the right pair of glasses

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