

Virtual reality tech brings construction efficiencies to Lake Nona Town Center



Pat Davis, Director of Virtual Design and Construction for Hoar Construction (left) and his construction superintendent use HoloLens augmented reality glasses on a jobsite. (Handout)

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You're standing in an empty field. You put on a pair of glasses and all of sudden, you see buildings rise around you. Now you're seeing both the land and the buildings. It's the work of the **HoloLens**, hologram technology the professionals at **Hoar Construction** are using to visualize their designs on jobsites throughout Orlando, including the **Lake Nona Town Center** project.

"It's pretty early there and still in the design phase. We can take the HoloLens out and envision what the site will look like," said Paul Walker, Vice President, Technology Division, Hoar Construction. "You look at a site where nothing exists now, and you can walk around and visually see where things are going to be placed."

The Birmingham-based construction company is an early adopter of the Microsoft self-contained mixed reality technology that combines virtual reality with augmented reality.

"You're in a virtual world, but you're in the real world," Walker explained. Using multiple sensors, advanced optics, and processing units for holograms, the technology knows where the user is in the space and adjusts the view accordingly. "In the construction world, we can bring up a model and stand in the exact location where something will be."

Doing so allows someone to make changes in real time and see what those changes will look like. By making hand gestures while wearing the glasses, the user can note something, take a snapshot or send an email. Walker recalled one example of looking at a proposed door frame and noticing the hinge was too high. The design team was able to update the model, moving the hinge down until it met his specifications.

"It's critical to identify if there is an issue with something. You can send it off to be corrected and once the model is corrected, you can look at it again and verify the model matches the actual condition," Walker said. "It really simplifies the process of trying to identify if something is correct or not."

Cool factor aside, the HoloLens has real value. "There is a cost savings of finding out there is a problem before something is installed," Walker said. Since the hologram superimposes the model over reality, you can see if a pipe will be too low to walk under or if a post will block a sightline. "Think of it as an overlay as you're walking around a space."

Hoar Construction has been using the technology since mid-2017.

"There is a learning curve. The hardest part is getting used to the gestures," Walker remembered from experience. Each person using it receives training and the reaction to it is immediate. "It has been amazing. I have seen people put this on and say this is incredible," Walker said.

For those outside of the construction field but still part of a project, the HoloLens has served another purpose. "You're giving them that visual aid so they can get a look and feel for a space," he said. Virtual reality and 3D modeling can show what a room would look like, but without the truly immersive experience. In this way, you're actually in the room walking around. "The technology can help you make decisions," Walker said.

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