

## MEP Consulting Firm uses Autodesk Building Systems to visualize their design intent and minimize revisions

Harris Consulting Engineers, LLC (HCE), a 40-person mechanical and electrical consulting firm, has been engaged in the private practice of professional mechanical and electrical engineering in the greater Las Vegas area since 1983. HCE specializes in HVAC, plumbing, and electrical systems for casinos, financial institutions, auto dealerships, schools and higher education facilities, and more. HCE is known as a proactive and innovative company driven to meet their clients' needs.

### The Challenges

When using Softdesk® 8 (S8) software, HCE faced many challenges. "S8 was difficult to use, drawings were difficult to modify and took too much time to create, plus the 3D design process was cumbersome and tedious," says Tom Harris, P.E., HCE President and Principal Electrical Engineer. "The software was not intuitive and lacked built-in intelligence, so we really ended up using S8 as a 2D drafting tool."

HCE needed a software solution that enabled them to increase productivity, minimize design revisions, and visualize design intent so that they could share their design in a way that was easier for clients and owners to understand.

### The Solution

Tom Harris found that solution in Autodesk® Building Systems software. Not only is Autodesk Building Systems meeting their clients' needs, but HCE is already seeing major benefits from using the software as well.

"Our engineers realize significant time savings through the advanced interference detection features that resolve collisions among building

systems early in the process and avoid problems and increased costs during construction," Tom Harris said. "Because of this, we're saving time on project revisions and getting accurate construction documents completed on time."

HCE is also able to develop complex 3D schematic renderings and easily convert them to 2D construction documents, ensuring better accuracy and design coordination. The conceptual phase of the project is where they really take advantage of all that Autodesk Building Systems has to offer, because they are generating 3D objects that are intuitive to an architect. "We can do what we need to do to make sure that they understand our space constraints," says Tom Harris. "Plus our designs are giving the contractor a more accurate representation of what we want them to do."

After implementing Autodesk Building Systems, HCE has seen a 50 percent jump in productivity. "Autodesk Building Systems is giving our engineers the ability to reduce their drafting time and improve accuracy," says Tom Harris. "The technology also allows engineers to quickly update sections, elevations, and schedules to reflect design changes."

## Harris Consulting Engineers, LLC

On top of these productivity improvements, HCE engineers are also benefiting from better layer management and the extensive libraries of intelligent 2D and 3D objects. These objects make the 3D modeling task much easier because they are no longer building objects from scratch. "There are 3D pumps, chillers, air handlers, gate valves, globe valves, and butterfly valves. That stuff's already built for me," says Randy Harris, HCE Vice President and Senior Mechanical Engineer.

### World Furniture Market Proves the Point

At the World Furniture Market, a 1.3-million-square-foot, 10-story wholesale furniture market in Las Vegas, the architect wanted HCE to take all the ductwork up through the roof. Using Autodesk Building Systems to model the building's mechanical systems, HCE developed a 3D visualization that showed piping and ductwork spatial requirements for several options at a glance. Based on the 3D model's visual feedback, HCE was able to show the architect and owner that an alternative design reduced the vertical shaft requirements by about 15,000 square feet, offering the owner additional retail space and an opportunity to increase revenue.

### Differentiating from the Competition

Problems don't have to happen if the job is done right, from the start. "Because I've shifted my time away from the end of the project to the beginning, life is a lot sweeter," says Randy Harris. "Let's face it, in terms of word of mouth, it's not only the drawings; it's whether it works when it's built, and with Autodesk Building Systems we're able to see the end result and feel confident that once a system is built we've done our job."

"I think what we're doing here at HCE we're doing it successfully, because the size and types of projects are consistently growing, we're winning more business, relationships we have with architects are ongoing, and 95 percent of our business is repeat business," says Tom Harris. "We're working with Autodesk Building Systems and completing drawings in 3D because it does differentiate us from the competition and the clients and owners we work with expect 3D renderings from us. We've spoiled them!"

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