VIRTUAL REALITY AND THE EVOLUTION OF DESIGN REVIEWS

Hensel Phelps' design-build approach of putting their 3D models into virtual and mixed reality brings new efficiency to the design review process.

CHALLENGE

Owners, occupants, and other stakeholders have traditionally relied on 2D drawings and text to understand and make key decisions about construction projects, including how they will navigate, interact with, and maintain/repair the space. Animations and renderings do little to alleviate these challenges because they lack the context and scale needed to fully understand scale and distances. It is not uncommon for problems to go unnoticed until during or after construction, leading to costly rework and delays.

SOLUTION

Hensel Phelps uses workstations equipped with NVIDIA Quadro P5000 or P6000 GPUs to develop and drive VR and MR headsets such as the HTC Vive, Oculus Rift, and the Microsoft HoloLens to provide immersive virtual and augmented reality design reviews. Being able to walk through and interact with a space helps in answering key questions and resolving potential issues before they become costly changes. For example, nurses can propose relocating doors to minimize the number of steps needed to make their rounds, and maintenance personnel can verify easy access to building systems.

IMPACT

Projects that fully integrate virtual reality technologies are seeing a 60-65% reduction in the number of design issues and helps prevent time and cost overruns. Faster, more reliable decision-making helps ensure timely ordering of the correct materials and building systems. Reducing the Requests for Information (RFIs) can save thousands of hours on a single project. Spotting and resolving issues before construction begins avoids both the near-term time and cost of rework and the long-term impacts of using a suboptimal space.

> "Our four pillars are people, processes, partnerships, and technologies. Using NVIDIA Quadro GPUs goes a long way to improving our work in all four areas."
>
> **Drew Rebman, Lead VDC Engineer, Hensel Phelps**

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