IMPROVING MOBILITY TO DELIVER IMMERSIVE DESIGN EXPERIENCES

Image courtesy of Mortenson

NVIDIA

QUADRO RTX MOBILE WORKSTATIONS PROVIDE INCREASED POWER, SPEED, AND FLEXIBILITY FOR VR EXPERIENCES.

Image courtesy of Mortenson

SUMMARY

> Mortenson wanted a mobile solution that could keep up with their traveling needs.

> The team needed technology that could run VR applications smoothly.

> Mortenson wanted capabilities that allowed them to make changes to designs in real time.

> NVIDIA Quadro RTX powers the Dell mobile workstations that provide Mortenson with GPU-powered speed, flexibility, and performance.

> Today, the Mortenson team can travel to clients and easily set up their equipment to provide excellent VR experiences.

INTRODUCTION

Mortenson strives to provide their clients with an immersive, virtual reality (VR) experience when they review building designs. But when traveling from one meeting to another, the team has to carry all their equipment, from desktop PCs and VR headsets to additional monitors and extra cables. Recently, Mortenson leveraged NVIDIA® Quadro RTX™-powered Dell mobile workstations to bring state-of-the-art technologies to their clients. With faster setup times and GPU-accelerated performance, Mortenson is able to deliver an engaging VR experience that allows clients to give real-time feedback during design reviews.

CHALLENGE STATEMENT

When it comes to reviewing the designs, mockups, and layouts of a building, virtual reality is becoming an essential part of the process, because it enables clients to gain deeper insights into the project. Mortenson is using the latest VR technologies to provide their clients with an immersive experience during design reviews.

When the team at Mortenson visits their clients, they conduct reviews in virtual reality every other week to get feedback from construction managers and user groups. For these meetings, the team would bring a desktop PC with a monitor and set up all the equipment with the HTC Vive headset. However, setup was a lengthy process.

CUSTOMER PROFILE

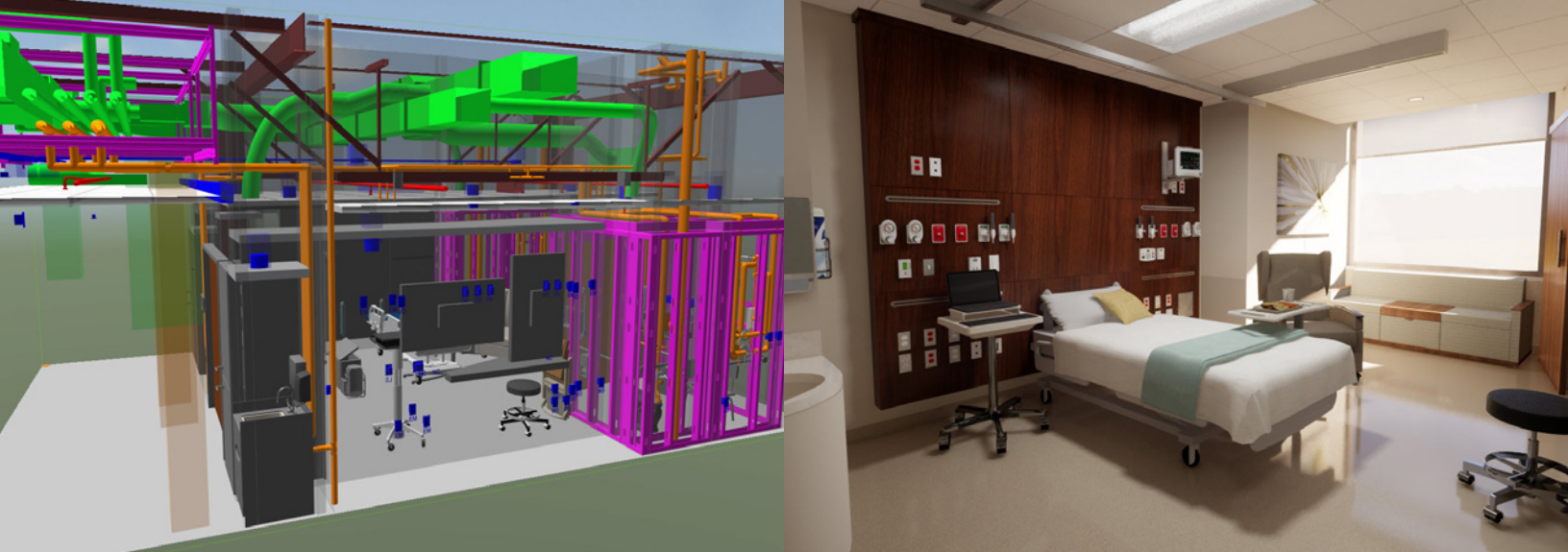| **Organization**	**Industry**	**Location**	**Founded**	**Size**	**Website**
Mortenson	Architecture, Engineering, and Construction	HQ in Minneapolis, MN, USA	1954	3,000 employees	mortenson.com

Image courtesy of Mortenson

SOFTWARE

Autodesk Revit

Enscape

Unreal Engine

HARDWARE

GPU: NVIDIA Quadro RTX 5000

Dell Precision 7540 Mobile Workstation

HTC Vive Head Mounted Display

REASONS FOR NVIDIA

> Delivered high-performance workstations

> Ability to multitask while running VR applications

> Use of GPU resources to make changes in real time

"It was very cumbersome to transport," said Tom Bossow, Mortenson's integrated construction coordinator. "The equipment was very heavy. If there was no elevator, we would have to carry all of it. We even almost dropped our workstations a few times when the carry straps fell out."

Transporting the materials from meeting to meeting was a constant hassle. They would often have to set up additional equipment to project images onto a bigger screen, and they always had to bring extra power strips and make sure all the cables were present. There were also occasions where Mortenson would need to set up meetings with multiple clients in one day, so they would have to rush taking down all the equipment to make it to the next meeting in time.

In addition, some buildings such as hospitals would have smaller conference rooms, so the setup became even more complicated when trying to connect the desktop and VR headset. The lack of space prevented the Mortenson team from delivering an excellent VR experience. Not only did it result in longer review cycles, but it also reduced the opportunity for group discussions as people would need to take turns coming in and out of the room.

And without real-time capabilities, it was more challenging for the team to take client feedback and incorporate the changes in a timely manner. Review cycles would often be time-consuming, because the team would have to return to the office and implement the changes before they could share the latest updates with clients.

Image courtesy of Mortenson

"We always seek the bigger and powerful desktop PC, but we're really starting to see more power and fast computers in smaller laptops."

Tom Bossow,
Integrated Construction Coordinator, Mortenson

SOLUTION STATEMENT

To enhance the experience for their employees and their clients, Mortenson wanted a mobile workstation that would improve their current process and allow them to better leverage VR meetings with the HTC Vive headset.

The Quadro RTX-powered Dell Precision 7540 mobile workstation provides the Mortenson team with the ability to travel and set up their VR equipment faster. And to help the team travel from meeting to meeting, the mobile workstation can handle the HTC Vive requirements while letting users multitask on applications like Autodesk Revit and Enscape.

Initially, the Mortenson team had concerns over whether a mobile workstation would have enough power to handle their virtual design reviews. They also run into many instances where a client will ask to change the colors or textures or a design, so they needed a powerful solution that could provide instant feedback and allow them to interact with the designs in real time. With the Quadro RTX 5000 GPU, Mortenson gets the speed, flexibility, and performance they require to run different VR builds and environments with even more detail than before, from operating room designs to headwall simulations.

RESULTS STATEMENT

With the Quadro RTX 5000-powered Dell mobile workstations, Mortenson can now tackle VR meetings and new projects with ease. They have the capabilities to incorporate VR earlier into their design processes and have more time to be proactive within review cycles. The ability to multitask while running VR applications allows Mortenson to pick up changes that are made during the meetings. The Dell mobile workstation enables the team to easily present to groups of people and drive more engaging sessions with everyone in the room together.

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>
> Tom Bossow,
> Integrated Construction Coordinator, Mortenson

"The biggest result is being able to multitask using different software applications and make changes on the fly while you're in a meeting with clients," said Bossow. "We always seek the bigger and powerful desktop PCs, but we're really starting to see more power and fast performance in smaller laptops."

The real-time decision making is incredibly valuable to customers, and it's the main differentiator in utilizing VR, high-end equipment, and the latest technology. Working in real time means Mortenson can progress at a new, faster pace while allowing customers to feel confident in the decisions they're making.

Mortenson also follows a "one-model" approach to make collaboration easier, and this has reduced production time by 80 percent, as it allows the team to create virtual mockups using one source. Being able to instantly collaborate on one model and one software lets the team be more innovative within the project, as it provides one single source of information to interact with and work on. Without this approach, performing reviews in VR would be much more challenging.

Mortenson uses software like Autodesk Revit to easily make changes and publish the mockup faster than before. With real-time feedback and immediate communication, there's no need to tell clients they have to wait to see the changes. Additionally, both the Mortenson team and their clients are impressed with how quickly they can set up and take down the VR equipment. They no longer have to carry extra materials or crowd around over a 27-inch monitor.

"You're able to keep a small, neat little area for your meetings, now that you're not bringing extra equipment," said Bossow. "People sometimes think VR is big and wide with lots of wires, but with laptops, you become more organized with space."

To learn more about NVIDIA Quadro RTX, visit: **www.nvidia.com/aec**
For more information on Mortenson, visit: **www.mortenson.com/**

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