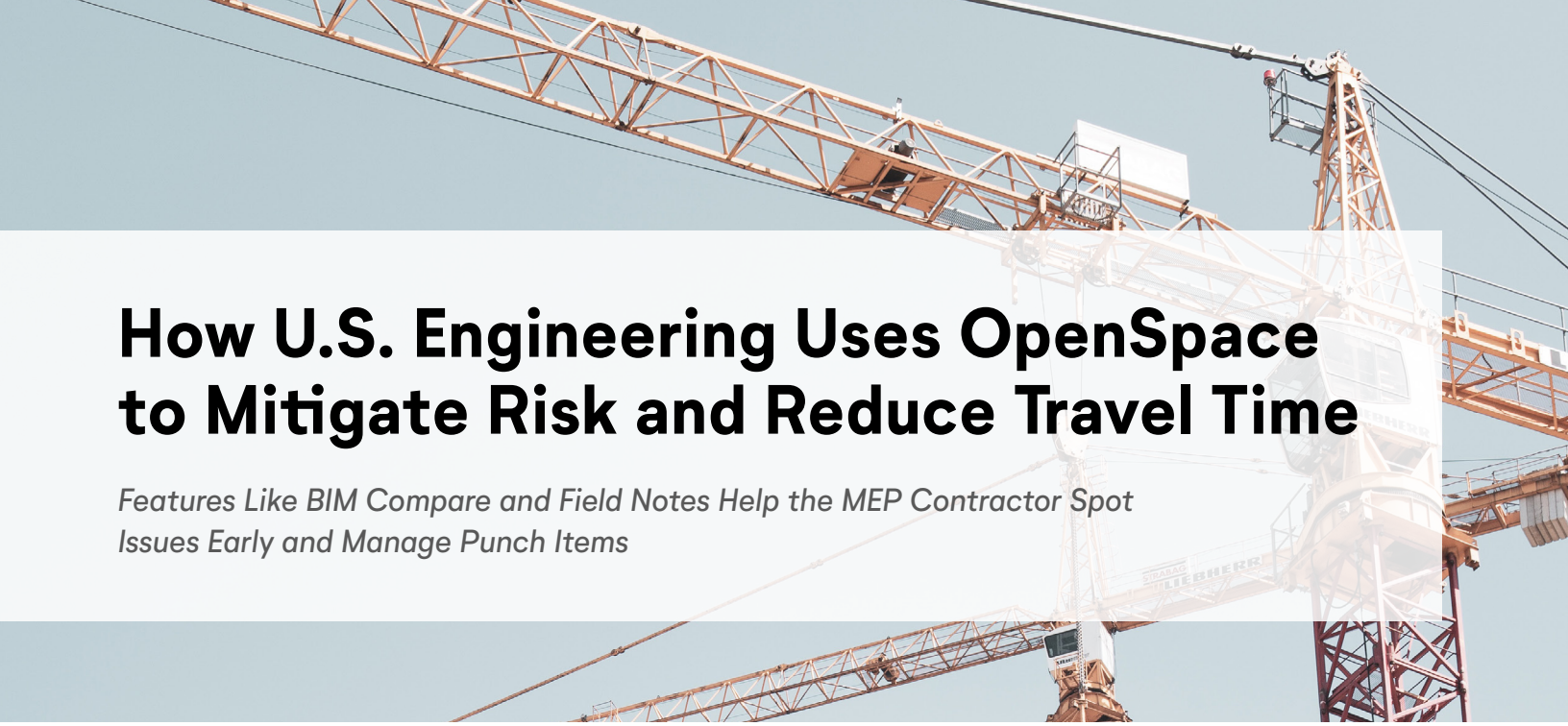

How U.S. Engineering Uses OpenSpace to Mitigate Risk and Reduce Travel Time

Features Like BIM Compare and Field Notes Help the MEP Contractor Spot Issues Early and Manage Punch Items

Goal: Mitigate Risk Through Robust Photo Documentation

Chad Lucks is a Quality Control Manager for U.S. Engineering, an MEP contractor with a footprint across the Rocky Mountain region and Midwest. In 2021, he was looking for a more thorough way of documenting the many jobsites he was tasked with monitoring. Historically, all he had to go on were notes jotted down by colleagues and cell phone pictures, which could be unreliable and inconsistent.

The limitations of spotty, manual photo documentation were especially clear when issues arose. In a previous job, Lucks spent hours poring over boxes of old photos and trying to find the right ones—akin to looking for a needle in a haystack.

Lucks, who is based out of U.S. Engineering's Colorado office, was also eager to find technology that would reduce his commuting time. Since he's typically working on more than a dozen projects at any given time, having the ability to drop in on jobsites remotely would help him stay on top of developments in Arizona and North Dakota when he can't be there in person.

Strategy: Use OpenSpace to Check for Quality Issues Remotely

Lucks started using OpenSpace to capture his projects, including hospitals in North Dakota and Arizona, a Target in Boulder, Colo., and public schools in Denver, with the main objective of reducing risk. He soon began relying on the BIM Compare feature (which shows a side-by-side view of actual site conditions with the model) for day-to-day work. It helps him catch issues that might otherwise be missed and would be expensive to correct down the road.

"I switched to OpenSpace because I can be anywhere and reference the drawings and model we're using in Arizona, for example, alongside what's really happening on site," he explained.

> **"Through the detailed documentation OpenSpace provides, we have a true as-built."**
>
> Chad Lucks, Quality Control Manager, U.S. Engineering

OpenSpace automatically generates a Google Street View-style video of the project, so Lucks typically plays it at half-speed to look carefully for discrepancies and issues from his office.

Having a single source of truth helps everyone get on the same page. For example, he recently noticed in BIM Compare that a section of piping and valves present in the model was missing in a ceiling. He created a Field Note in OpenSpace, assigned it to the VDC technician, and linked it to Procore. From there, the team confirmed there was an error in the as-builts, which was corrected.

"Paper as-builts are old-school and going away," he said. "Through the detailed documentation OpenSpace provides, we have a true as-built, which is better for maintenance and the owner at the end."

OpenSpace has proved easy to learn, and more and more Project Engineers are using it to capture sites by simply strapping a 360-degree camera to their hard hat and walking.

> **"Our goal is to have it on every project where we're allowed to take photos."**
>
> Chad Lucks, Quality Control Manager,
> U.S. Engineering

U.S. Engineering staff are heavily using OpenSpace's Field Notes feature, which lets them jot down a note or take a picture from the field and have those items automatically pinned to the plans for easy reference and seamless collaboration. For example, on their Denver-based National Western Center project (where clean energy will be sourced from wastewater), the contractor is using Field Notes to document punch items as well as every piece of equipment, including the forms, submittals, and inspection reports associated with them. These will be handed over to the owner and facilities management team for quick reference if the equipment breaks down or needs servicing.

U.S. Engineering is also using OpenSpace Track to automatically generate percent completes for sheet metal installation, which facilitates monthly pay applications and saves time. Lucks also thinks it benefits Superintendents by helping them understand if teams are falling behind on a project.

10 HOURS SAVED PER WEEK

THOUSANDS SAVED IN REWORK

Meanwhile, U.S. Engineering Project Manager Aaron Denning is using OpenSpace Track to track sheet metal installation on his current project. This not only helps with documentation but can also be used to forecast how much sheet metal should be brought to the project at any one time, which prevents material from being kept on-site for weeks before it's needed.

Finally, Lucks is using OpenSpace's 3D Scan feature to scan electrical and ductwork near ceilings in order to measure them at a later time—without having to climb a ladder or use a tape measure. Since this need comes up frequently, it saves time for him.

Results: Savings on Rework and Increased Productivity

OpenSpace is being harnessed in an increasing number of U.S. Engineering projects, largely through positive word of mouth.

"Our goal is to have it on every project where we're allowed to take photos," Lucks said.

OpenSpace has driven results in the following areas:

- **Risk mitigation and better communication with GCs:** U.S. Engineering can use OpenSpace to prove they're not responsible for delays in the schedule. For example, a GC recently provided a hard deadline for when the contractor needed to complete its work on a particular floor, and they were able to demonstrate why this wasn't possible by proving that another contractor hadn't completed its work, which was blocking them from proceeding.

- **Savings on rework:** On the hospital project in North Dakota, Lucks spotted an area where pipes should have been installed but hadn't. Since he caught the discrepancy with BIM Compare before the ceiling was closed up, U.S. Engineering avoided rework costs it might have incurred if the mistake had only been noticed months later.

- **Time Savings and Reduced Travel Costs:** In addition to the out-of-state jobsites he's assigned to, Lucks works on projects across Colorado—from Denver to Colorado Springs to Boulder to Fort Collins. Visiting these sites might require three or four hours of driving per day. With OpenSpace, he doesn't need to go as often, saving him as much as 10 hours per week. OpenSpace also recently eliminated the need for designers to fly in to visit a school project—after U.S. Engineering's Senior Project Manager Patrick Barnett pulled up OpenSpace captures during an OAC meeting to address their questions virtually.

- **Increased Effectiveness:** For out-of-state sites he doesn't visit as often, OpenSpace helps keep Lucks up to speed on progress so he can contribute more effectively. "Before OpenSpace, people would be calling me without me having any context," he said. "It was definitely a lot harder."