

Customer Story

Trimble X7 3D Laser Scanner Helps Dick Anderson Construction Ensure Accuracy and Avoid Rework

Trimble X7



 Trimble®

Overview

Dick Anderson Construction (DAC) is a general contracting and construction management firm with offices across Montana and Wyoming. Most of the company's work is in vertical construction including multi-family buildings, institutional hospitals, and schools. With over forty years in construction, they have an iron-clad track record for finding solutions and exceeding expectations.

Jake Van Dusen has been with the company for 12 years and recently created and became the manager of DAC's Virtual Design & Construction (VDC) department. This group is focused on experimenting with and adopting digital technology and innovative practices that deliver cutting edge solutions for its projects.



3D Laser Scanning

A vast majority of DAC's projects that they scan are post tension concrete decks and underground plumbing before they lay a slab. About four years ago, Van Dusen was working on a project that involved the use of a laser scanner and he was so impressed with the technology he decided to buy his own scanner for DAC. However, the company quickly outgrew the original scanner and wanted to find a solution with more features and functionality.

Van Dusen researched technology from several top construction technology vendors and, after a Trimble sales representative visited the DAC headquarters and provided a hands-on demo, he was impressed by the quality of the data and ability to compare it to the model in the field. He also liked the personal touch of being able to see and try the actual product before buying it. He purchased the Trimble® X7 3D laser scanner powered by Trimble FieldLink software, and shortly after, use of the technology quickly took off in the company's Bozeman office.

The Trimble X7 3D Laser Scanning System is a compact 3D laser system that makes it possible for professionals with little or no scanning expertise to capture precise 3D scanning data to produce high-quality deliverables. The combination of Trimble hardware and software also extends BIM workflows and helps DAC precisely capture accurate as-built conditions to facilitate prefabrication, layout, safety, real-time viewing, communication, and collaboration.

Van Dusen is impressed with the workflows of FieldLink as well as the floor flatness/levelness tool, heat map, and colorful inspection. It shows what is high and low, where the depths are changing, and helps them figure out how the interface works between the flat model and the slab.

Quality Assurance and Quality Control

On a recent hospital expansion project, Van Dusen wanted to overlay scan and CAD files to see if things lined up and ensure that the slab would be flat, which was a top priority due to the machines and equipment that would be in the hospital. Using the Trimble X7, he discovered that where operating tables and CAT scan machines would be located, the slab was too high. After analyzing the data it was determined they would have had to grind down slabs on the first floor in order to meet the requirements for the equipment. Fortunately, he was able to correct the issue before any rework was needed.

Another discovery was made when DAC used the Trimble X7 on an apartment project with several bedrooms and bathrooms. On the first floor slab, they wanted to overlay the wall layout to make sure the plumbing sleeves were on the walls. They found that

they were lined up perfectly but the toilets were on the wrong side of the room. Had this been discovered after the concrete was poured, they would have had to rip up the floor and move the toilet plumbing and then re-pour the slab. Instead, they were able to move the plumbing and save both time and money.

Data Sharing and Model Comparison

In the past, DAC would schedule rebar, plumber sleeves, and electrical sleeves before the pour date and then often discover mistakes after the slab was poured. Now they can build in time to scan the area before the pour is done and fix things before the concrete is poured. This may add a little time on the front end, but it helps avoid costly mistakes. Additionally, the scan data is then available for future reference. Van Dusen still gets contacted by teams that poured slab a year ago who ask for the scans.

We are excited for the opportunity to discover what else we can do with the Trimble X7.



It has a lot of potential and the ability to share data with other people in the organization and make the model more available is a huge advantage.

Now, instead of Van Dusen trying to sell his colleagues on the scanner, it is being requested. While originally the application of overlaying models was viewed as a cool thing to look at, now it is an expectation on most jobs.

A 3D Laser Scanner for Every Office

Due to the distance between offices, which can be anywhere from 3-4 hours, sharing physical resources is challenging. However, after hearing about how the Trimble X7 uncovered the floor issue on the hospital project, Dick Anderson, the company's president, wanted to have one for every office and shortly after, DAC purchased five additional Trimble X7 3D laser scanners.

Van Dusen is doing most of the training for the other offices remotely, however, he says the scanner's ease of use and straightforward user interface makes a big difference in the adoption of the technology.

When it comes to learning how to use the new technology, Van Dusen's advice is, "Don't be afraid to use it. Just start scanning early in the construction process before the concrete is poured because at, anytime, you are going to want to know what is beneath it."



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