

Civil Works Contracting uses digital construction technology to improve processes across the construction lifecycle

Contractor



The project

Project type: Multi-use commercial and residential development

Flight frequency: Every two weeks

Total area: 20 acres

Location: North Carolina, USA

Results

- Major time savings, especially in the field
- Enhanced quality control
- Significant increase in accuracy of estimations
- Enhanced collaboration with owners

Added value

- Provides major benefits across the construction lifecycle
- Enables accurate estimating and progress billing of earth moved and materials
- Provides photo documentation and helps resolve potential disputes more quickly
- Helps detect potential mistakes before they become bigger issues

Introduction

While the construction industry is often characterized by a more traditional approach, this is changing. In fact, forward-looking civil construction companies such as Civil Works Contracting are seeing the enormous value in embracing the digital age and integrating new technology into all aspects of their processes. The company is one of the first to adopt data analytics to manage projects – resulting in better outcomes for all parties involved. In this case study, we will demonstrate how Civil Works is leading the way by integrating digital construction technologies and using data-driven practices to improve the overall construction process.

Background

Established in 2011 in North Carolina with only 3 employees, Civil Works Contracting is now a fast-growing, full-service infrastructure construction company that employs more than 150 people.

Civil Works Contracting offers diverse construction services, including, but not limited to, heavy civil construction and infrastructure, general contracting, railroad construction and maintenance of way, as well as turnkey construction of commercial, institutional and federal buildings. The company has earned widespread recognition for its ability to undertake large-scale, diverse, and intricate construction projects.

This expertise is combined with the use of drones, machine control, and cutting-edge digital construction technology, which have been integral to the company's success in delivering high-quality projects for commercial, institutional, and federal projects.





Benefits of using a single digital construction platform across the construction lifecycle

Civil Works started using DatuBIM – Datumate’s cloud-native SaaS 4D infrastructure data analytics platform – in 2020, and uses the platform to provide accurate estimations for bids and then throughout the construction lifecycle to measure materials, elements and progress, and ensure that projects are completed on time and within budget.

According to Phil Broom, a project manager, estimator, and drone operator at Civil Works, the DatuBIM platform is an extremely powerful tool as it can be used throughout the construction project lifecycle and brings multiple benefits across the board.

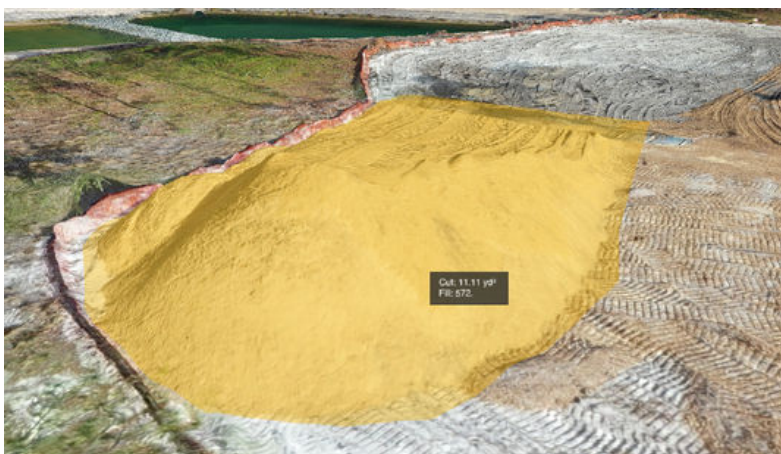
Multi-use commercial and residential development in Wilmington, North Carolina

In the case of a large multi-use commercial and residential development in Wilmington, NC, Broom conducted the first drone flight in August 2022.

This initial footage is used as a baseline for estimating the first phase of the project, which involves the need to cut down the hill to grade in the area above the houses and move the excess material to a stockpile below the pond for use in future phases of the project.

In fact, as dirt is so valuable in this and other projects in this region, DatuBIM has and will be used to measure the specific volume of earth multiple times across the project lifecycle:

1. During the bidding (estimation) phase.
2. To verify those quantities once the excess dirt is removed from the area above the buildings and getting the site on grade.
3. To measure the volume of the new stockpile with the moved dirt and compare it to the number of trucks hauling the dirt there. This is used as a safeguard solution to ensure that none of the dirt is removed off site and unaccounted for during the project lifecycle.



“We use DatuBIM to accurately measure anything from clearing to dirt volumes, stockpiles, excavating ponds, and piles of debris left on sites that need to be removed. Recently, we needed to provide an estimate for a 650,000 square foot warehouse and could easily get answers to questions we had using drone footage and measurement tools from the platform. And that’s only during the bidding and preconstruction phases... It gives us so much value across the entire construction lifecycle.”

Phil Broom, Project Manager,
Estimator and Drone Pilot at
Civil Works Contracting



Main benefits of using digital construction analytics platform

- **Time savings especially for measurements in the field.** This is especially significant for Broom, who used to do the measurements manually himself onsite. “Today, I can go out and fly the drone and then do all the measurements from my computer – a lot faster and a lot more accurately. As opposed to going out to the site, especially in 100-degree weather, with my little wheel going up and down measuring all the curb or other elements.”
- **Accurate progress billing.** This is a major benefit for Civil Works as the company can accurately track monthly progress and easily share these reports with project owners for billing purposes.
- **Accuracy.** By using the platform, Civil Works is able to significantly improve accuracy and as a result, project quality.
- **Ability to catch potential deviations and mistakes in the early stages.** By having access to aerial views and comparing these with design files, it’s much easier to pick up on potential clashes or mistakes and resolve them before they become more serious issues.
- **Production rates and monitoring.** Civil Works also uses the platform to check and compare the production rates and progress of projects and analyze where optimization is required. In addition, this information is used to estimate timelines and product rates for future projects.
- **Enhanced safety.** Civil Works places safety at the forefront of its operations and DatuBIM helps by enabling the company to pick up on and correct any potential safety issues ahead of time.



Next steps

Currently, Broom is the only drone pilot at Civil Works and the only employee who is fully utilizing the DatuBIM platform. But this is all about to change as the company is planning to expand its drone program and increase its usage of the platform so that additional project managers can benefit from it.

DatuBIM will further reinforce the company’s growing reputation as a market leader that uses digital construction technology to accurately track and monitor the progress of multiple projects and more effectively collaborate with other contractors and project owners while saving time and reducing costs.

Through their use of advanced civil construction techniques and digital construction management, Civil Works is able to maximize efficiency and ensure that each project is completed to the highest standards – on time and within budget.

Looking to digitize your construction site?

Get a demo **now.**

