



5 Reasons BIM Technology Is Vital

Navigating the Construction Industry's Recovery Now — and in the Future

U.S. CAD

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As firms pivot from the global health crisis, **BIM technology** enhances prefab and modular design, remote work, job site safety and productivity.



With nearly 200 employees and an average of 80 projects at any given time, MCL Construction represents a sprawling, full-service firm with a reputation for excellence. But for years, executives didn't have a standardized method to see key metrics necessary to understand the business as a whole and make smart business decisions.

That all changed in 2018, when MCL brought in U.S. CAD to help its team implement BIM software across all departments.¹ The software provided better data standardization for safety checklists, equipment-maintenance reports and field information about any project. And because everyone was now using the same system, the company finally had a single source of truth for key business functions such as tracking manpower, submitting punch lists and assigning issues to subcontractors while tracking progress. Even partners such as architects, suppliers and project consultants have adopted the tools.

"Collaboration is facilitated through the system, and we can put everyone into the project and have them access the same information," said Tim Tiensvold, director of innovation at MCL. "It's easy to track, and we don't have to pursue people, because they're receiving automated reminders."

Additionally, company executives can use all that data in powerful ways.

"We're monitoring 82 active projects, from building a classroom space to a \$50 million addition," Tiensvold said. "We're able to review user activity and determine who in the company is proficient at certain things. The data in the system is being used to drive better decisions and provide insight."

Having that kind of anywhere/anytime data insight has always been important. But for companies such as MCL, the recent global health crisis has made it vital.

"A lot of companies are in high gear trying to make up ground that they lost to quarantine downtime and especially if they've had a job site shutdown due to an outbreak," said Andrell Laniewicz, senior technical specialist with U.S. CAD. "They're also having to seriously rethink labor."

In fact, amid the 2020 global health crisis, nearly 70% of construction firms said they had work canceled, and nearly 50% furloughed or terminated employees, according to AGC surveys.² And although the industry is regaining its footing, the long-term outlook remains uncertain. "Construction may have held up longer than many sectors once the pandemic hit. But the industry's recovery will also take much longer, while some segments may not get back to early-2020 spending or employment levels for many years," warned Ken Simonson, chief economist at AGC.³



The ROI of BIM Technology

Savvy construction firms are doubling down on BIM software that gives them real-time data and visibility needed to coordinate, communicate and document work among various project teams whether they're on-site or remote. Today's leading software allows supervisors to manage shifts and do more prefab and modular design, further reducing crew sizes, which allows for crucial social distancing. As labor shortages worsen — and supervisors have to get more creative about how to keep workers safe, yet productive — the software also enables remote hiring, along with labor sharing/shifting, by effectively increasing the labor pool to anywhere in the country.

"We've always been saying that if you're not innovating, you're losing your edge," Laniewicz said. "And then this comes along and everybody's finally forced to face it. You either stop working and shutter the doors, or you figure out a way to keep working. The way to keep working has been through BIM-enabled technologies." Laniewicz added that leading BIM-software interfaces are more user-friendly and training time drastically reduced. "People are really blown away by how far that technology has come," she said.

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Many construction pros are also impressed by the ROI they see from using BIM software:

- Hill Partnerships discovered that what used to take a superintendent two hours can now be done in **30 seconds** using a combination of **100%** laser scans and BIM technology.
- IMCO Construction finished a water-treatment plant **10 months** ahead of schedule with only one layout error. It also won the bid to handle the ongoing operations and maintenance of the plant thanks to BIM-enabled software and technology.
- Mortenson used BIM technology to lower the cost of a new stadium **\$100 million**, deliver the project six weeks early and manage more than **20,000 issues** before they became RFIs or rework.

Another study from Dodge, “Measuring the Impact of BIM on Complex Buildings,” found similar results⁴:

- **74%** of contractors said BIM improved constructability of the final design.
- **71%** of engineers said it improved the quality/function of the final design.
- **85%** of AEC pros said BIM resulted in a reduction in the final construction cost.
- **88%** of AEC pros said BIM led to an accelerated job completion.

And owners were just as enthusiastic about BIM:

- **93%** said it improved the quality/function of the final design.
- **73%** said it increased their understanding of proposed design solutions.
- **70%** said it generated better construction documents.
- **70%** said it improved their ability to plan construction phasing and logistics.



5 Ways BIM Software Can Help Firms Recover Now — and in the Future

As construction firms contend with the effects of the global health crisis, many are finding that owners increasingly expect firms to have technology solutions that deal with social distancing and job site safety as well as the ability to track and trace. And as more companies look to BIM technology to meet these demands, many are discovering that the tools are essential for not only dealing with the current situation but also increasing margins and competitiveness.

“Those with BIM technology have found themselves more able to adapt,” Laniewicz said.

Here are five key ways BIM software can help firms recover now — and come out the other side stronger than ever:

1. Prefab and modular design. As companies look for ways to keep workers safe and keep production moving, a growing number are shifting to prefabrication and modular workflows. Doing more work off-site allows for less people to be on-site for better social distancing with smaller crew shifts. “Anything you can do off-site is very helpful right now,” Laniewicz said. BIM technology such as reality capture and modeling gives an exact picture of what’s happening on-site and makes prefab and modular design more effective than ever. For example, the technology allows drywall to be pre-cut for faster, more efficient on-site installation. Other firms are even using digital modeling to pre-print steel for framing. “There are so many applications and ways that contractors can assemble or prepare components off-site and do the final installation on-site,” said

Aaron Wagner, solution consultant at U.S. CAD. “It means less time on the site to do the install and easy adjustments if needed.”

2. Remote meetings and document coordination. These days, meeting remotely is crucial. But remote meetings only work if everyone is looking at the same information. Since it coordinates and updates documents, BIM technology gives everyone access to the same information without needing to be in the same room. This single source of truth makes it possible to not only meet remotely but also require fewer meetings since documents are updated automatically. Technology automatically alerts those who need to know about updates. Updates can even be done in near-real time during remote meetings. For example, if a question arises about a particular issue on-site, a picture can be quickly taken with a mobile phone and uploaded for all to see. Without that BIM assistance, everyone might need to meet on-site, creating more risk, especially in the cramped quarters of a construction site. “Often people meet in person because pulling the manager and the super together can be difficult,” Laniewicz said. “But using BIM technology, people can meet from anywhere. They can see each other’s markups, and everyone has up-to-date drawings. There’s one source of truth.”

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Andrell Laniewicz, senior technical specialist, U.S. CAD

3. Job site safety and contact tracing. Job site safety has taken on a whole new meaning because supervisors now need to think about how to protect workers from one another. BIM technology provides both proactive and reactive measures to keep job sites healthy and safe. Proactive measures that BIM technology supports include: health checklists for people coming on-site to determine access, webcams/wearables to see where workers are on-site and ensure distance, and visibility into job sites so supervisors can shift workers around as needed. If managers need to react to health issues, they can use webcams/wearables to track and trace where and with whom a person with a virus interacted and quickly shut down areas of job sites that must be quarantined while keeping other areas working. “A lot of contractors are taking this more seriously,” Wagner said. “They realize they need to stay busy and productive in the midst of all this, so they’re asking themselves, ‘What tools can I use to enable that?’ and the clear answer is BIM software and technology.”

4. Optimizing labor and productivity. Companies have had to develop more flexible labor models amid the global health crisis. BIM technology allows them to optimize labor and maintain productivity while maintaining a balance with safety. For example, rather than 24 workers in an area, supers are using three shifts of eight. This allows deep cleaning to happen concurrently with staff/site meetings, check-ins and shift turnovers. BIM technology ensures each crew has up-to-date info and keeps communication flowing between shifts. Since the technology tracks all workers and comments, a single super can still manage multiple shifts. And because crews all have the same information, they don’t have to meet in person and there are fewer question marks, which leads to fewer

RFIs. “It’s very much about balancing productivity with safety,” Laniewicz said. “These tools allow managers to track what was completed and what needs to be completed. So you can come in in the morning and go, ‘This guy didn’t even look at what was assigned to him. What did he do all night?’ Or you can go, ‘Oh, wow. They hit their marks, they hit their numbers, and, you know, everything’s good.’”

5. Proactive data-driven solutions. As noted, BIM tools give contractors new access to real-time, single-source-of-truth data. This data allows companies to see where projects are in real time as well as know where bottlenecks are occurring so they can fix problems before they become costly oversights. Additionally, historical data reveals which subs are performing best and most safely and which ones bring the most risk. Teams can use BIM technology to track reported positives cases across a project by company. Construction technology may be used for proximity monitoring, as well, to alert workers when Social Distancing rules are not being followed. Implementing the combination of both solutions allows targets quarantine of workers instead of losing productivity by quarantining entire teams. The BIM-enabled data reveals important trends across projects along with common challenges and opportunities for improvement/productivity increases. And it shows where schedules are compromised as well as the underlying variables that are causing those slips so solutions can be implemented more quickly. “This is where data really shines,” Wagner said. “If you have better insight into the project and how it’s all performing day-to-day, you can plan better. There’s no better way to drive changes than having real-time information.”



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Gaining a Competitive Advantage

Clearly, companies that take advantage of BIM technology have a major competitive advantage in the new market reality. The technology's ability to enhance prefab and modular design, remote work and job site safety while upping labor and productivity while providing data-driven solutions is more important than ever as firms continue to pivot from the global health crisis. And onboarding these solutions has never been easier.

"With the pandemic, the advantages BIM tools have always offered have become even more important. But construction firms need to start thinking about the long term, not just while there's a pandemic," Wagner said. "But there's a big misconception out there about what it takes to adopt BIM technology. The truth is, a lot of subs can be enabled in an hour. You don't have to take your people offline for weeks of training. And once you show them how to use it, workers really love it."



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Aaron Wagner, solution consultant, U.S. CAD

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