Trimble Tekla

The Concrete Contractor's Guide to Avoiding Hidden Dangers

Are these unseen risks hurting your profitability?

Few industries are as competitive as construction, and cast-in-place concrete is no different.

When you're trying to win bids, there's often pressure to squeeze margins and find opportunities to reduce costs in order to ensure your bid is competitive, and has a chance of leading to new business.

What's unseen to many concrete contractors are the hidden dangers to their bottom line that can erode their ability to remain competitive, win new business and achieve desired profit margins. These are critical factors that—despite having a huge impact on your margins and competitiveness—tend to be easily overlooked and go unattended, sometimes until it's too late to react and change course.

Inaccurate cost estimates, inefficient workflows and lack of true collaboration can be hard to detect, but they have a huge impact on your ability to compete in this tough market. Luckily, these issues can be easily resolved once diagnosed. Increasingly, the leading concrete contractors are leveraging technology to overcome these challenges and are now benefiting from increased confidence in their cost estimates, lower operational cost due to improved efficiencies and greater collaboration, which mitigates the risk of costly preconstruction and onsite errors.

The benefits of using Building Information Modeling (BIM) software in concrete construction have resulted in an uneven playing field, and early adopters are experiencing a significant competitive advantage. If you've found yourself losing bids to the same firms over and over, there's a good chance they've already adopted these technologies. Of course, as more and more concrete contractors adopt new technology and workflows, the competitive disadvantage of the contractors left behind continues to grow.

Again, although these dangers to your ability to compete are hard to identify, they're equally easy to resolve. In this eBook, we'll demonstrate how BIM software is being used today to deliver 3D models that help you visualize projects and deliver constructible data, making it possible for you to win more business and achieve your target margins.

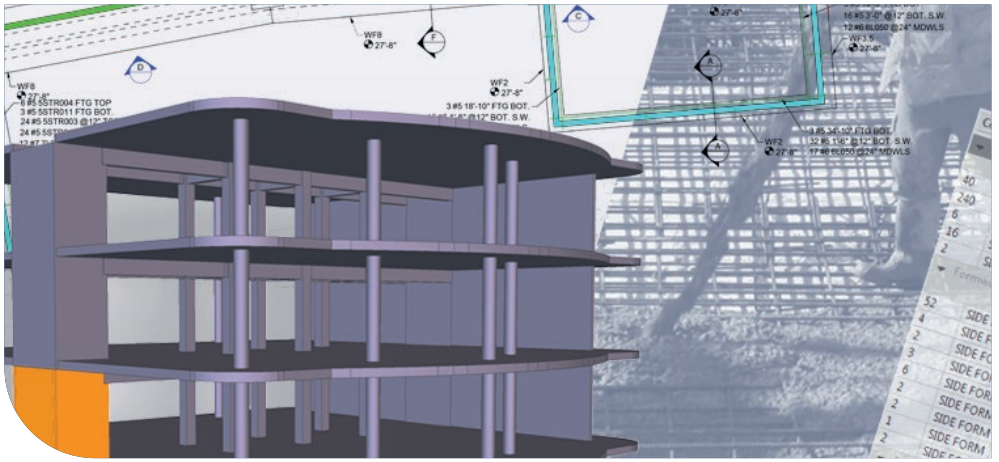
Avoid Inaccurate Data, Including Cost Estimates

At the risk of stating the obvious, lacking confidence in your project data can be fatal to your business. It leads to adding unnecessary and counterproductive "fudge factors" to your competitive bids, costly rework and miscommunications within your company and with outside stakeholders. Leveraging BIM software from the onset of a project improves its visualization, ensuring accurate quantity takeoffs and producing constructible data that can be delivered to all stakeholders on a real-time basis.

Winning business and ensuring profitable margins is a task that requires a high level of focus for any business, and in the concrete construction industry there are a number of hidden dangers that can have a serious impact.

One of the most common stems from a simple mindset — Order more than you think you'll need". For example, when pour planning and concrete takeoffs are calculated manually to find concrete order quantity. In a rush, nobody wants to risk coming up short. So waste is created by over ordering "just in case", leading to inaccuracies in bids and target margins. Though this approach may have been appropriate for projects in the past, there's no need to rely on inefficient practices and traditionally inaccurate working methods when modern, purpose-built tools can provide accurate estimates, and those contractors slow to embrace such methods will likely be left behind.

> "By modeling the concrete ourselves using Tekla, we can catch any issues during the preconstruction phase, **resulting in more accurate estimates** for the owner and fewer RFIs during construction."
>
> **— Lou Varni,**
> Assistant VDC Manager
> at Pankow



A growing number of construction companies are finding that most construction waste can be reduced or eliminated by adopting a constructible process, with digital tools and information accessed through Building Information Modeling (BIM) software. All the information everyone working on the project needs, accurate and in one easily accessible location.

Tools within BIM software also aid productivity by reducing the chance of overlapping tasks, duplicated work or the need for rework—all of which contribute to major impacts on project progress, increasing the risk of construction running over budget and behind schedule.

These tools help every process work as a cohesive whole. The more insight, the greater the efficiency, which is critical to success in a tight-margin business like concrete construction. Winning a bid using inaccurate data can lead to unprofitability down the line, or even lead to a failed bid at the outset.

Avoid Crippling Inefficiencies

When your competitors are able to better deploy their technology and related workflows to reduce their operational costs, you're put at a disadvantage that can be difficult to recover from. Of course, as more and more concrete contractors crack this code, the larger this competitive gap will become. Using BIM software to not only create a 3D representation of the project, but also to produce all the necessary, constructible data leads to efficiencies that extend from your design team, to the onsite team and even empowers other trades working on the project.

> **"We save a lot of time and effort** by using the model to put that information instead of going drawing by drawing. It's very point and click, which makes it more accessible and more scalable to the project."
>
> — **Bo Snyder,** VDC Manager at Self Perform Work

A major factor that can impact timelines and budgets of any construction project is guesswork, often resulting from the necessary recreation of a vast amount of data that may already exist, but hasn't been made available in a central, accessible location. That guesswork can slow things down in the office, and on the job site too.

For the estimator looking to ensure accuracy, this creates a large amount of repetitive work. And if the source and the scope of the quantities are difficult to trace—even if they're accurate—stakeholders downstream might hesitate to use this data in their work. The simplest, most effective solution is to use a 3D model as your information source. But, just creating a 3D model isn't enough on its own, it must be intelligent and connected to the takeoff in order to trace the origin for quantities.

An intelligent data model helps avoid the hidden dangers of inaccuracies by creating visual representations of estimates and takeoffs, which in turn builds confidence for people downstream.

It's easy to see the big picture by taking a macro view of the entire project or zeroing in on specific quantities, all with accurate and easily accessible data that removes the need for repetitive rework. It's an efficient and accurate way to get the sequence at a very early stage of the pour planning process, with all the relevant information in one place.

Compared to traditional ways of working—like spreadsheets—3D models are an extremely powerful way of ensuring data quality and delivering information.

Avoid Pitfalls that Limit Collaboration

Few challenges are more costly than job site errors caused by miscommunications and a lack of collaboration, both within the concrete contractor organization and with other trades and stakeholders. Contractors who successfully create and provide access to a "single source of truth" for constructible data will mitigate this risk of errors, making it easier to complete projects on time and within budget.

Every project involves multiple people, often working in parallel on their own task or objective, or coming together to make decisions and progress. But multiple people also means multiple challenges—obstacles that can become hidden dangers to your project timelines and outcomes.

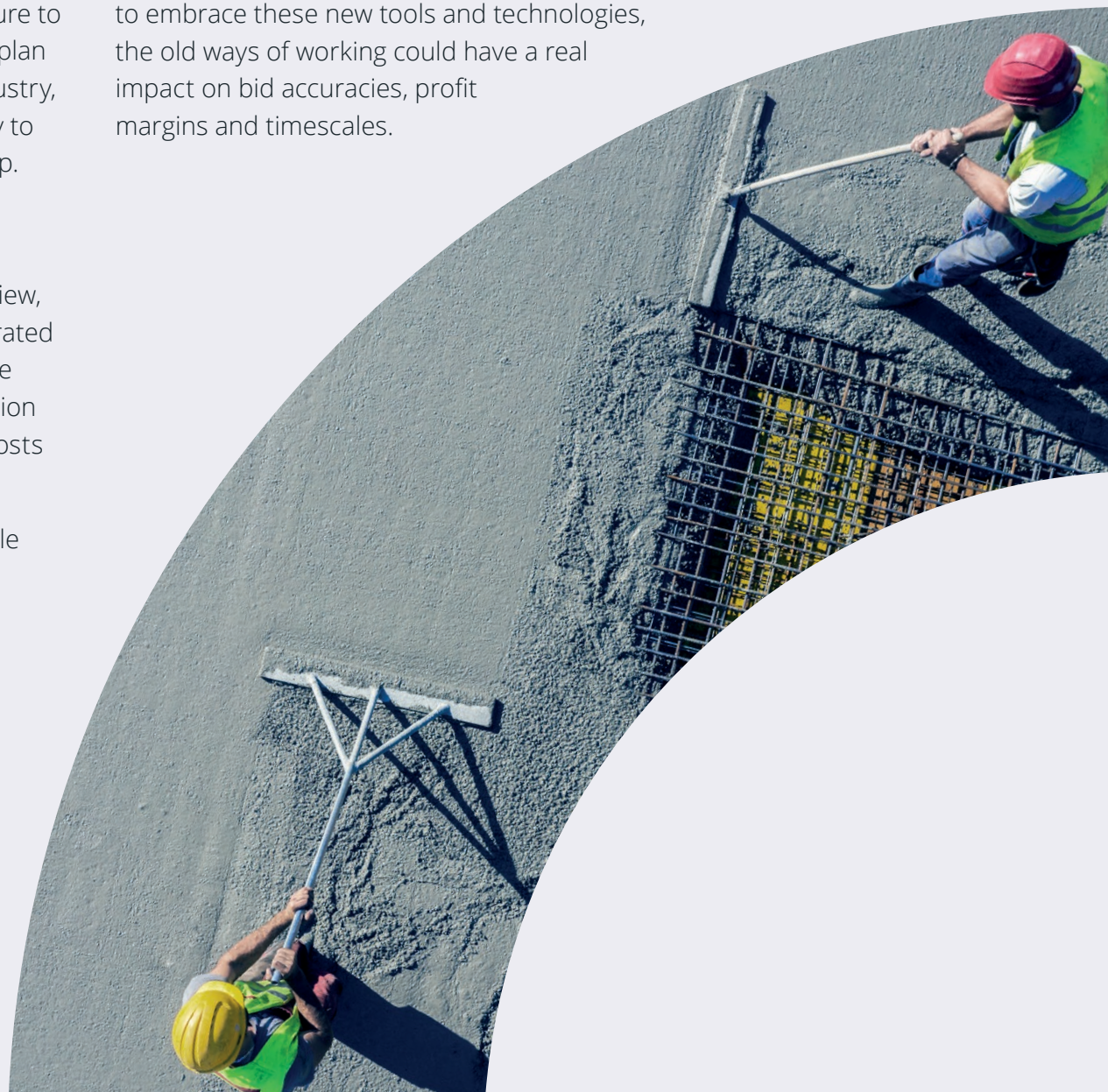
> **"The use of a single, shared model certainly helps immensely** with coordination and communication in demanding projects."
>
> — **Aarni Heiskanen,** Construction Innovation Agent & Member of the Tekla Global BIM Awards 2020 Jury

Overlapping work can lead to misunderstandings, and the need for multiple reworks or amends. It can also cause mistakes during bar ordering and fabrication, which leads to delays on site. All stemming from poor communication and a failure to effectively collaborate. Finding the right way to plan is a vital asset in the concrete construction industry, and planning for proper collaboration is the key to avoid those hidden dangers before they crop up.

One way of achieving efficiency through collaboration is the use of 3D modeling. These tools allow for all relevant people to access, review, change and comment on the model. This integrated way of working saves valuable time for everyone involved in the project, allowing for timely decision making that streamlines progress and lowers costs on the job site.

For example: during rebar detailing in the middle of the construction process, the detailers need information from the engineering office, which is then passed on to fixers and concrete contractors. Using a 3D model allows for collaborative work across complicated projects with multiple sequences and zones that require pour coordination. Everyone has a single source to show which zone needs to be completed and when.

By using a 3D model with this information clearly attached, the hidden dangers of miscommunication and misunderstandings can be avoided, and so can the cost implications of those errors. For those slow to embrace these new tools and technologies, the old ways of working could have a real impact on bid accuracies, profit margins and timescales.



The Dangers are No Longer Hidden

With the competitive nature of our business and all the demands on your time, it's easy to move from bid to bid without understanding why they're won or lost, and equally easy to move from project to project without taking the time to research why target margins were not realized. While these dangers to your bottom line can be very well hidden, they're also easily resolved once they're addressed. By leveraging the right technology and corresponding workflows, you can achieve your financial goals and gain a competitive advantage over rivals.

The concrete construction industry does not exist on an equal playing field, contractors who made the choice to successfully integrate technology within their organization enjoy a critical advantage that requires others to adapt or fail. It's our hope this booklet has helped shed some light on these hidden dangers and has motivated you to seek further information.

There's a reason Trimble's Tekla software is the industry leader and using it can help you avoid these hidden dangers, which is why we'd love to help you get started. The best part is, you don't have to take our word for it because customers like DPR Construction and Wayne Brothers consistently provide real-world examples of how Tekla Structures has helped them bid more effectively and seamlessly collaborate on projects.

Visit **Trimble.com** to learn more about how construction-specific software solutions can help lower your financial risk, streamline operations and increase your margins.

LEARN MORE

About Trimble

Trimble is developing technology, software and services that drive the digital transformation of construction with solutions that span the entire architecture, engineering and construction (AEC) industry. Empowering teams across the construction lifecycle, Trimble's innovative approach improves coordination and collaboration between stakeholders, teams, phases and processes. Trimble's Connected Construction strategy gives users control of their operations with best-in-class solutions and a common data environment. By automating work and transforming workflows, Trimble is enabling construction professionals to improve productivity, quality, transparency, safety, sustainability and deliver each project with confidence.

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