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Top Benefits of BIM for General Contractors

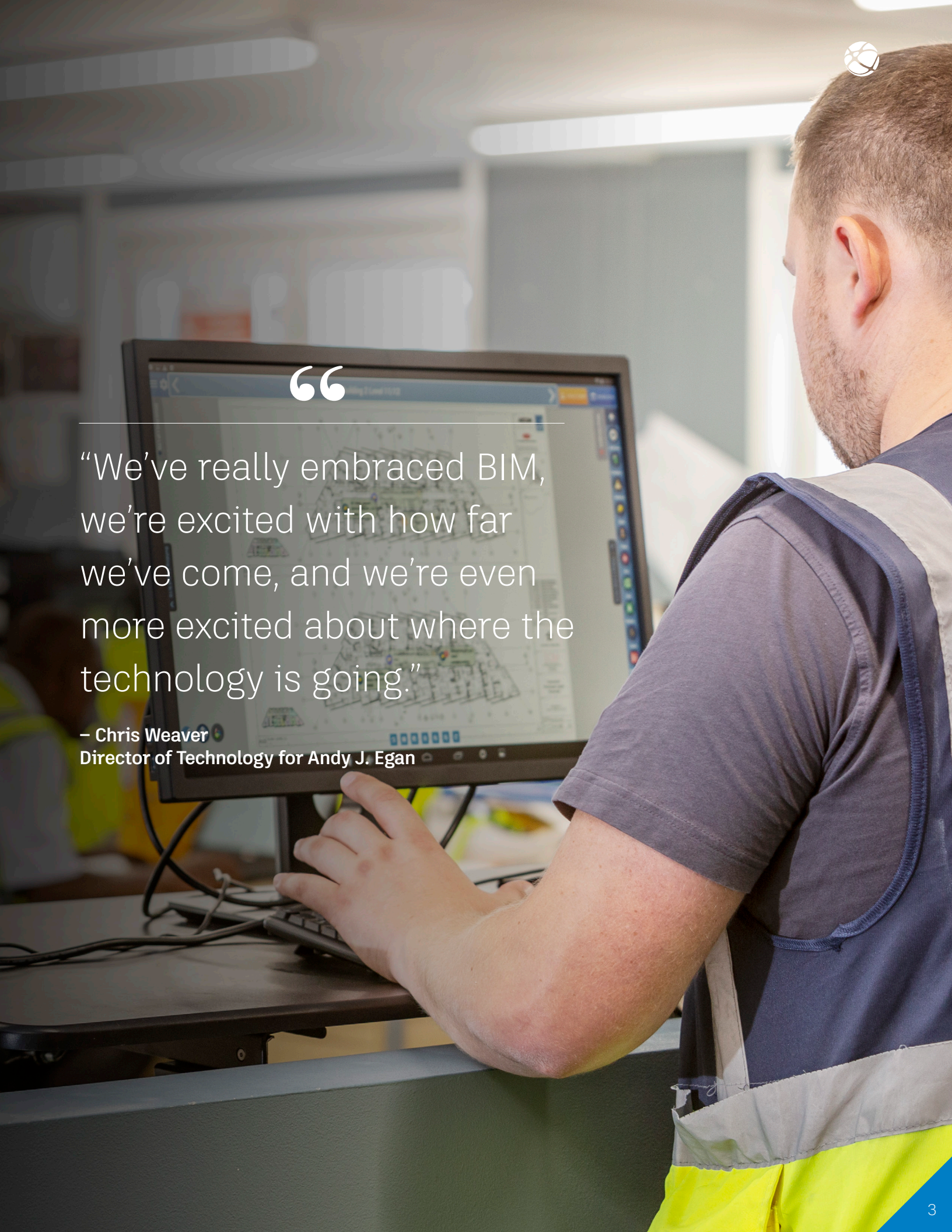
Introduction

No industry in the world remains untouched by digital technology. For the architecture, engineering, and construction (AEC) industry, this holds especially true. Technology is making vast improvements in the way general contractors plan and build projects, paving the way for a reimagined future. One technology in particular—Building Information Modeling (BIM)—is leading the way.

BIM is an intelligent, 3D model-based process that helps general contractors become more accurate and efficient. Over the years, BIM technology has grown in its breadth of capabilities, becoming a standard in the AEC industry. It's not surprising that a recent study by McKinsey found that 75% of companies that have adopted BIM reported positive returns on their investments. [1]

Thanks to the recent emergence of cloud-based BIM solutions, GCs, designers, and owners can now work together to identify and resolve errors in real time, avoiding costly mistakes and reducing rework. With the rapidly growing popularity of project delivery methods like Design-Build and IPD (Integrated Project Delivery), this enhanced ability to collaborate has become more critical than ever.

BIM technology is key to winning more work in an increasingly competitive industry, while also unlocking efficiencies through a centralized project management system. In this guide, we'll explore some of the top benefits of cloud-based BIM technology for general contractors.



“We’ve really embraced BIM, we’re excited with how far we’ve come, and we’re even more excited about where the technology is going.”

– Chris Weaver
Director of Technology for Andy J. Egan

Benefit #1: Win More Business

Winning both new and repeat business is a necessity for today's GCs to remain competitive. With digital technology becoming an expectation, many owners are now requiring BIM deliverables throughout all phases of construction. This makes the role of BIM in a GC's workflow more important than ever.

Not only does BIM allow GCs and preconstruction leaders to meet client expectations, it also allows them to go above and beyond to impress owners. If a picture is worth 1000 words, a 3D model is worth 1000 pictures. Showing up with a 3D model when owners are in the process of bidding out work is a game-changer, particularly when the competition does not. It helps build trust and credibility in an industry where reputation means everything.

Remember: many owners that make decisions about the work to be completed are not construction professionals, meaning they are not accustomed to reading plans and 2D drawings. Using a 3D model to visualize what's happening on the project provides the most value, as it's much easier to digest for non-specialists.

In our world of modern technology, it is critical that GCs adopt the use of BIM technology in order to stay competitive.

Satterfield & Pontikes Construction (S&P)

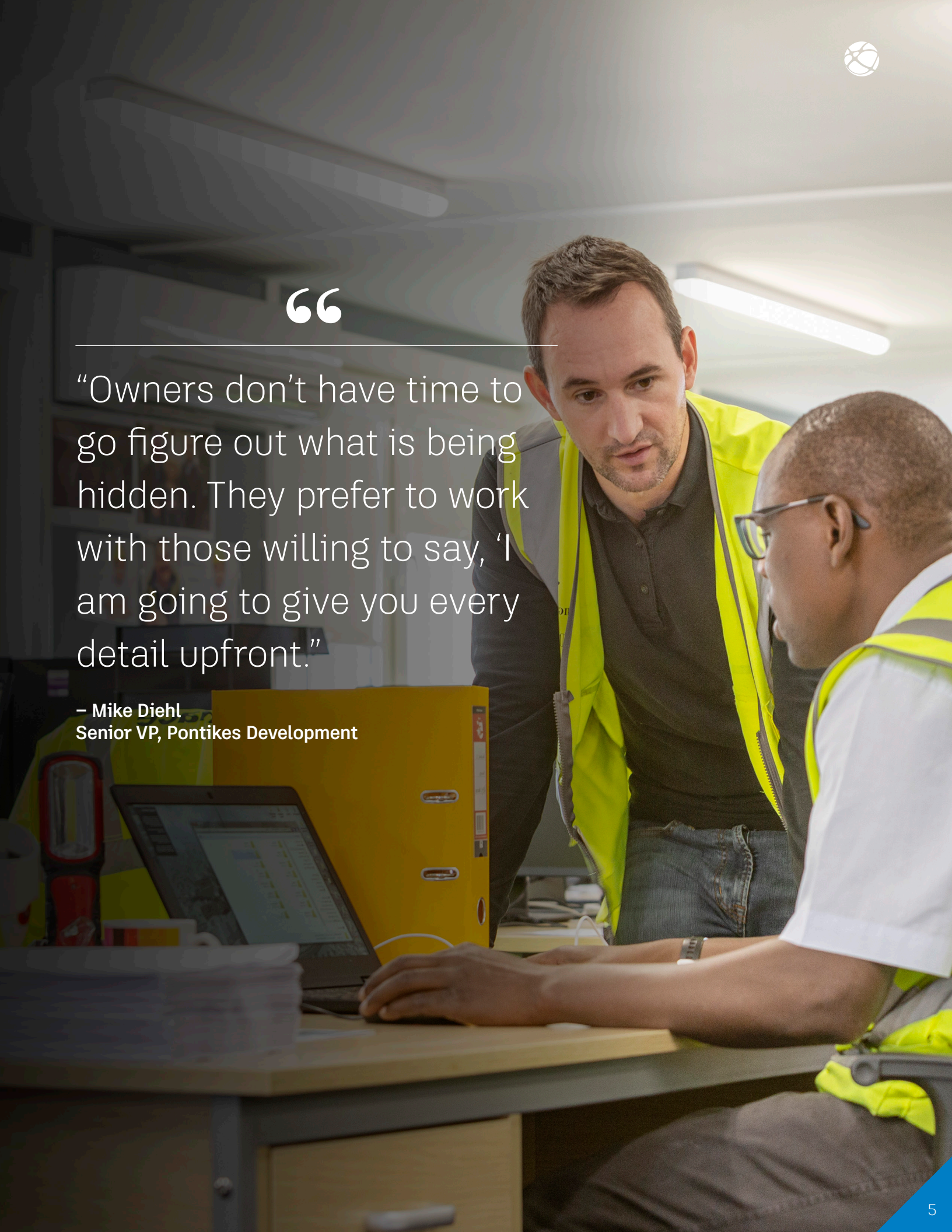
S&P averages over $500M in annual revenue and is a market leader in K-12 educational construction in Texas. Through the strategic use of BIM technology, S&P has made huge strides in winning more work and securing long-term relationships with owners.

Using BIM, the team has:

- Increased estimator efficiency through iterative model-based quantification and estimating
- Provided owners better visualizations and transparent project details to remove any doubt and enable faster decision-making
- Facilitated faster, more accurate iterations through all phases of preconstruction [2]

Juneau Construction Company

Juneau, a GC headquartered in Atlanta, is a prime example of how BIM can be utilized to create a more detailed approach to construction with a strong focus on quality. Utilizing BIM software, Juneau has earned a reputation with owners for staying on schedule, operating safely, and having transparent costs. The result? Juneau boasts over 85% repeat business. [3]



“Owners don’t have time to go figure out what is being hidden. They prefer to work with those willing to say, ‘I am going to give you every detail upfront.”

– Mike Diehl
Senior VP, Pontikes Development

Benefit #2: Reduce Rework

One of the unique features of cloud-based BIM technology is that all the project information can be stored in one place and accessed from anywhere. With cloud-based BIM coordination, organizations reduce rework by enabling the entire project team—regardless of their level of BIM expertise—to contribute to a model and detect clashes before ever breaking ground onsite.

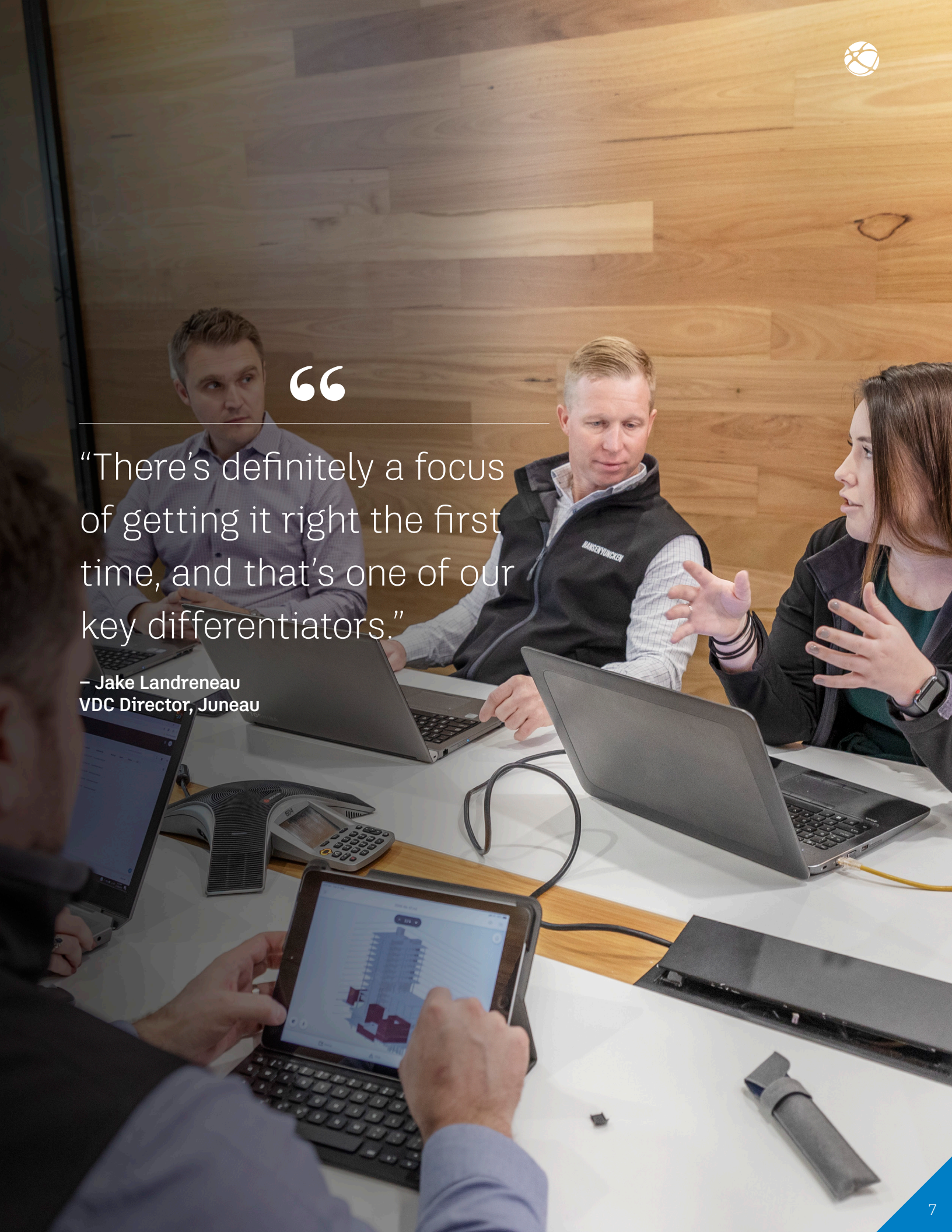
It helps address one of the most common struggles across the AEC industry: a siloed approach during project planning. When data is siloed across roles and systems, its power to drive meaningful action is hindered. The collaborative nature of cloud-based BIM coordination helps project partners avoid this issue, allowing design issues to be fixed proactively in the model instead of in the field.

This drastically reduces cost in the following ways:

- Rework costs the construction industry $65 billion per year. [4] By catching issues before rework is necessary, billions in losses can be prevented.
- 58% of construction firms say BIM leads to fewer field installation errors, which has enormous implications for reducing rework and material waste, along with improving productivity and schedule compliance [5]
- In the AEC industry, a single missed clash can cost up to $17,000 to fix. [6] Using a cloud-based system reduces the risk of this ever occurring.

Joeris

Operating in a highly competitive landscape in Texas, regional GC Joeris had the tenacity to ensure that BIM construction technology was adopted in their firm. Through a series of trials and errors, Joeris was able to enact successful adoption of the new process, leading to big gains. Through better project understanding, closer monitoring of design progress, and improved quantity verification, Joeris is now able to reduce rework, leading to a more efficient and less costly process. [7]



“There’s definitely a focus of getting it right the first time, and that’s one of our key differentiators.”

– Jake Landreneau
VDC Director, Juneau

Benefit #3: Improve Margins

Improving profit margins is never a simple task—especially in the AEC industry. However, implementing BIM technology is one proven method for ensuring more effective construction cost estimates, which in turn leads to improved margins. According to study by Dodge Data & Analytics, 85% of AEC professionals say BIM results in a reduction in a project's final construction cost. [8]

GCs that include estimators earlier in the planning stage are seeing more effective construction cost estimation, which has led to the growth of model-based cost estimating. This modeling is also known as 5D BIM.

Additionally, quantity takeoffs and cost calculation become vastly easier with properly conditioned BIM data. Integrated quantification software runs the numbers, leaving general contractors with the knowledge of exactly how much of every supply they need to buy. This leads to more accurate spending and improved profits.

BIM also aids with change management. When a new design is issued, a variance report can be run to pinpoint adds and deducts in the model. This allows a GC to have instant insight into quantity changes and other critical parameters, providing information on how it will impact the cost of the project. That way, leadership can make the right choices early on when adjusting cost estimates.

Joeris

Joeris also uses BIM technology to enable more proactive conversations between estimation and design. This allows for the identification of gaps and potential challenges early in the process. Through ongoing collaboration with transparent documentation, Joeris better focuses on accurate cost estimation. This way, the team can improve margins through smarter planning and fewer reactive decisions.

“BIM is really a tool that makes the estimating process better. We’ve reduced takeoff time by 35% for variance reports with reliable models.”

– Daniel Olivares
Senior Estimator, Joeris

Benefit #4: Mitigate Risk

While construction always include an element of risk, the goal is to mitigate as much of that risk as possible. By fully implementing BIM software throughout the entire project lifecycle, general contractors can collect rich data that mitigates a large amount of risk commonly associated with AEC projects.

For starters, closer collaboration with trade contractors can lead to reductions in tender risk premiums, insurance costs, overall variations, and opportunities for claims. For this reason, BIM can save GCs a significant amount of money while reducing risk in a variety of ways when the technology is implemented fully.

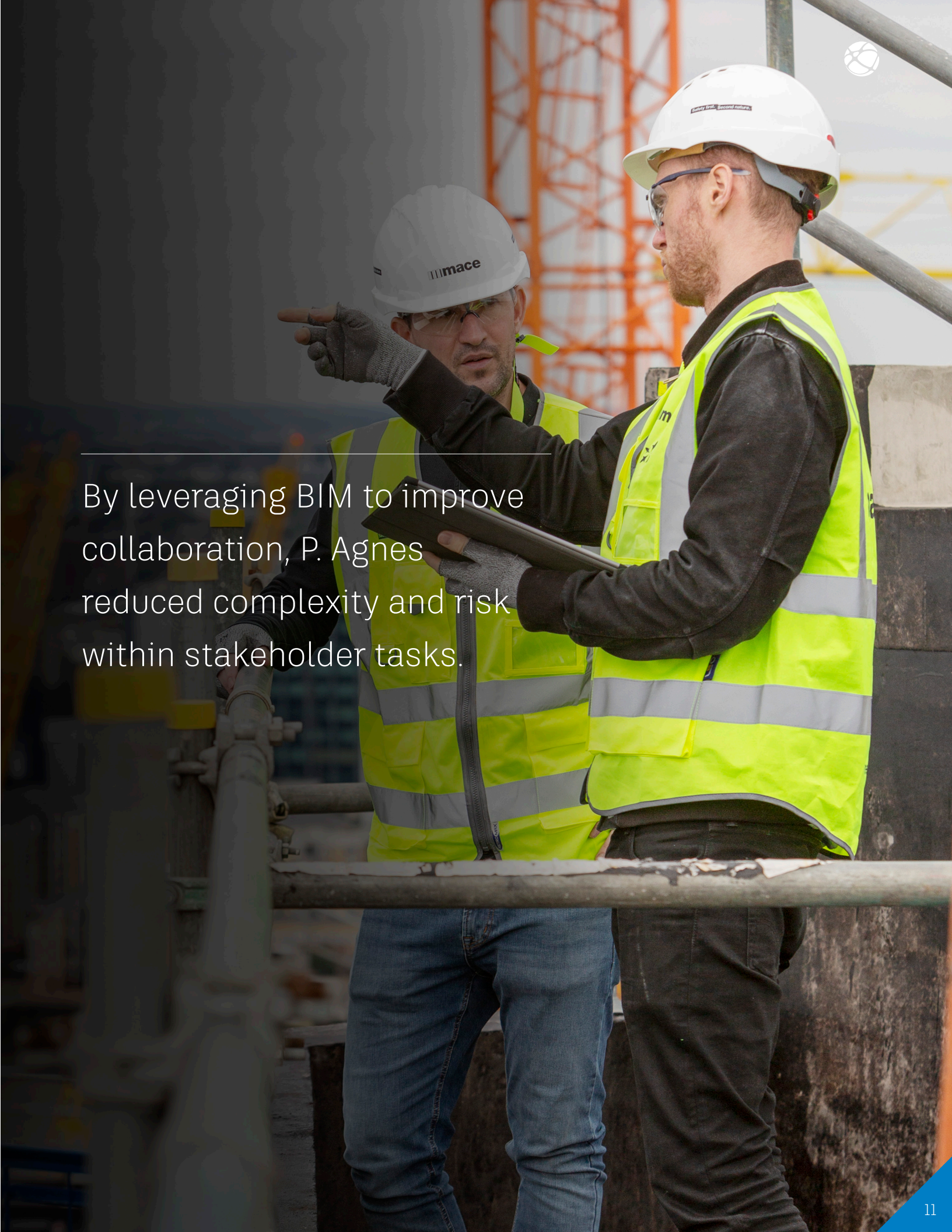
BIM software can also help improve construction safety by pinpointing hazards before they become problems. In an industry where safety risks are always top of mind, BIM can lead the way in important safety gains. BIM technology also makes it possible to avoid physical risks by visualizing and planning site logistics ahead of time. Visual risk analysis and safety evaluations can help ensure safety over the entire course of the project.

P. Agnes Inc.

P. Agnes, a family-owned Philadelphia Metro-area-based GC, uses BIM technology to create a single source of truth for project management and downstream stakeholders. That allows for improved collaboration, better quality control checks, and a reduction in risk with stakeholder tasks. Through full implementation of BIM technology, this firm more easily focuses on risk mitigation with intelligent data to back their decisions. [9]

Skanska

Skanska—one of the largest GCs in the U.S.—was an early adopter of BIM software. Utilizing machine learning powered through BIM, Skanksa harnesses the power of thousands of data points to mitigate risk. One key to Skanksa's success today can be found in their early plan for adoption readiness, ensuring that the team was able to utilize BIM software to improve risk mitigation from the get-go. [10]



By leveraging BIM to improve collaboration, P. Agnes reduced complexity and risk within stakeholder tasks.

Conclusion

BIM is an innovative technology that provides far-reaching benefits for the AEC industry. Adopting this tool as a general contractor can allow for unparalleled growth. From winning more business to reducing rework to improving margins and lowering risk, now is the time for GCs to fully adopt BIM technology.

With cloud-based BIM software, GCs can access the data they need at any time, from anywhere. This leads to better decision making and better project outcome predictions. As the many real-life examples demonstrate, BIM is adaptable to an array of situations, offering unique benefits to GCs of all sizes. The bottom line? Prioritizing BIM technology allows for a more collaborative approach during the entire lifecycle of a construction project—something GCs must adopt to stay competitive in today's high-stakes industry.

References:

[1] Imagining construction's digital future, Rajat Agarwal, Shankar Chandrasekaran, Mukund Sridhar, June 2016

[2] How S&P is Gaining Speed and Transparency in Precon to Win with Owners, Samira Tily

[3] Juneau's Focus on Preconstruction Services Leads to 85% Repeat Business, Lauren Ginsberg, September 2019

[4] FMI and PlanGrid: Construction Disconnected, Eric Thomas and Jay Bowman

[5] Leading the Future of Building: Connecting Design and Construction, Stephen A. Jones and Donna LaQuidara-Carr

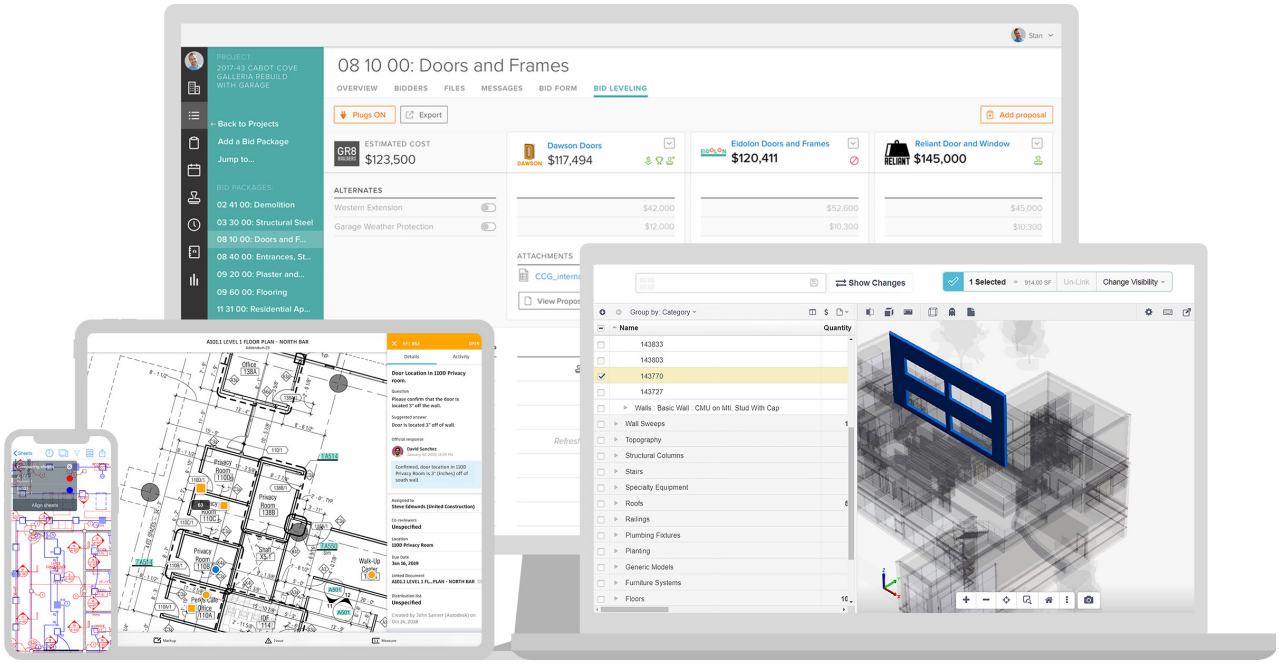
[6] Clash Detection in BIM Modeling, O'Donnell & Naccarato

[7] How Joeris Drives Adoption of Construction Data in Preconstruction and Beyond, Lauren Ginsberg

[8] Measuring the Impact of BIM on Complex Buildings, Stephen A. Jones

[9] How P. Agnes Uses Assemble To Expand BIM In Construction - Saving Time and Reducing Project Risk, Tim Kelly

[10] Skanska + BIM 360 Insight: Bringing Construction Risks to the Forefront, Autodesk University Industry Talk, April 2019



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