AUTODESK
CONSTRUCTION
CLOUD™

How Connected Construction Drives Collaboration and Empowers Specialty Contractors

Autodesk Construction Cloud™ harnesses the power of data at every stage of construction, allowing specialty contractors to maximize efficiency, improve safety, and increase profits.

① A Rising Demand

Without specialty contractors, the construction industry would quickly come to a crashing halt. Today, construction projects are becoming increasingly complex, and subcontractors are more in-demand than ever.

In fact, the trades bring in $750 billion in estimated annual revenues across 450,000 employers in the United States alone. In addition, most of the work for specialty contractors in the United States comes from commercial construction, supplying 49% of the total projects specialty contractors undertake.

As the spending on construction projects continues to increase, specialty contractors need to look to improve efficiency, focus on sustainable scalability, and communicate better with key project stakeholders. This will allow contractors to accept more work, capitalizing on this period of growth.

As projects become more complex—physically, commercially, environmentally, and societally—the traditional process of construction struggles to deliver acceptable outcomes. These traditional processes are dominated by pencil and paper, siloed technology, and gaps in communication across the project lifecycle. Trends like common data environments, connected construction processes, and a greater emphasis on collaboration enable teams to overcome the constraint on resources that have defined construction in the past.

Not only will project owners begin demanding a higher level of efficiency from subcontractors, but any gains made in productivity will result in direct profits for contractors. By optimizing the use of the right collaborative technology, specialty contractors can produce higher quantities of work while retaining quality standards. In addition, they can communicate more effectively across teams and deliver on time, or even ahead of schedule.

As complexity increases in construction, two technology shifts are connecting teams in critical ways: collaboration in the cloud and the use of big data.

Collaboration in the Cloud

Construction teams are complex, frequently spanning multiple organizations and geographies. Collaboration between project teams and stakeholders continues to be a challenge—one that introduces cost, delay, rework, and risk to projects. Traditionally, collaboration in construction has been predominantly an asymmetric process; that is, multiple parties in the supply chain each work on their own part of a project, which are coordinated by aggregating those individual models.

Specialty contractors particularly benefit from improved collaboration. Often, each one requires their own set of drawings, plans, documentation, and workflows. At the same time, subs are often working alongside other trade teams on a job site. Keeping everyone on the same page and collaborating in a shared space is integral to the success of any project.

The advent of the cloud has improved the ability of teams to share complex model geometries, collaborate in real time, and coordinate with more accuracy using a common data set. This lessens the reliance on manual upload processes and reduces errors and omissions along the way.

The better connected specialty contractors, project team members, and stakeholders are, the more efficient and less error-prone the process. This has created a future where insights will cycle from operations back into the hands of architects, engineers, builders, and owners. This cycle of collaboration utilizes the cloud to ensure every key team member is working from current data anywhere at any time. The cloud brings every project team together from design to turnover on a single construction software solution. It connects workflows and enables secure collaboration from a single source of truth.

Better Insights From Big Data

Today, in construction, large amounts of highly structured data are generated through BIM and other project technology. That's opening the door to a new discipline—construction intelligence—and the ability to predict the future by mining that data for insights.

Searching for patterns across a portfolio of project data helps specialty contractors identify everything from early signs of stress in the supply chain to the likelihood for on-site safety incidents and the root cause for an overestimation in bids. Risk mitigation is enhanced through better visibility into problems earlier in the project lifecycle, meaning they are addressed before they become costly.

② The Autodesk Construction Cloud

Autodesk Construction Cloud™ is a best-in-class cloud-based construction management platform. It has solutions for workflows that span all phases of construction—design, planning, building, and operations. It removes the disconnection that plagues construction projects by dramatically increasing the depth, breadth, and connectivity of the products teams are already using today.

Autodesk assists specialty contractor teams as they meet the world's rapidly expanding building and infrastructure needs while making construction more predictable, safe, and sustainable.

Autodesk Construction Cloud supports predictability and informed decision-making, eliminating the root causes of uncertainty that contribute to the low-margin, high-risk nature of construction. It combines advanced technology, a robust network of professionals and firms, and powerful insights to help businesses thrive. It connects data, workflows, and teams. Connected construction is the future of construction for specialty contractors.

"Our mission is to exceed expectations through embracing innovation and harnessing the full potential of our people. Autodesk Construction Cloud enables this as project teams have information at their fingertips to operate complex projects more efficiently."

–Matthew Bien-Izowski, Managing Director, BN Electrical

Connected Data With Advanced Technology

To avoid the risk of data silos and miscommunication, Autodesk Construction Cloud is built on a common data environment that connects critical project documentation and data. With best-in-class, purpose-built tools for critical workflows at every phase of the project lifecycle, Autodesk Construction Cloud helps contractors complete projects faster. Priority number one is building software that reduces time and increases clarity, but no aspect of construction happens in isolation.

With connected data, specialty contractors can:

- Leverage bid management systems to keep teams organized, improve collaboration and win more work

- Implement a cloud-based takeoff software to improve accuracy and speed of estimates.

- Utilize field productivity software to increase labor productivity and identify and resolve issues in real time.

- Ensure all team members are working from current drawings to minimize rework.

A Real-Time Network

Autodesk Construction Cloud improves the way teams collaborate by bringing them together through a real-time, crowd-sourced marketplace of contractors, suppliers, and industry partners. It makes it easy to bid quickly and accurately on prequalified contractors.

Historically, bidding out work has relied on institutional knowledge, decades-old relationships, and word of mouth. While personal relationships will always remain a focal point in construction, the old way of bidding out projects isn't sustainable anymore. The Builders Network helps supplement and expand personal Rolodexes through innovative technology that connects people and helps them build new relationships.

Predictive Insights

Connected data is not enough on its own. Data must be standardized and analyzed to create meaningful, predictive insights. With Autodesk Construction Cloud, data can be harnessed to better inform decision-making across the project lifecycle.

Similarly, collecting data is not a meaningful endeavor unless it provides direction or shows contractors important information about their bid wins and losses.

Autodesk Construction Cloud turns project data into actionable intelligence, which specialty contractors can use to identify, quantify, and mitigate risk. Automated machine learning and AI algorithms analyze critical project data and identify important trends and risk factors—highlighting them *before* they become more costly problems as a project progresses.

Autodesk Construction Cloud empowers teams to predict, prevent, and manage risk with data as the backbone. This occurs through personalized visibility into daily priorities, snapshots of project health, and insights into project-wide and company-wide performance.

Additionally, data dictates contractors' ability to collaborate with stakeholders across the project lifecycle and holds the insights needed to drive better business outcomes. Ultimately, Autodesk Construction Cloud gives specialty contractors the ability to access the data to make the right decision at the right time.

"It's a really positive thing because Autodesk is broadening the whole sphere, and it's about connecting multiple sources and giving you the right tool for your solution. There are loads of other systems that people could go and buy and use, but the point is, if you put all your data in here, you actually get some insight from it. But then all the tools remain in the same platform. You're not creating in a silo, and that's a good thing for us."

–Michael Murphy, Digital Construction Operations Manager, BAM Ireland

③ Connecting the Project Lifecycle

Autodesk Construction Cloud unites teams no matter where they are located. With the globalization in the demand for specialty contractors, this helps ensure that all contractors are united during planning, building, and operations. This breaks down silos and creates a seamless flow of construction information, which enhances every stakeholder's ability to deliver on project outcomes.

No aspect of construction can happen in isolation, which is why data is the connective tissue of Autodesk Construction Cloud. Disconnected data creates confusion. Connected data empowers confident decisions. Connected construction brings all project data together in one place for predictive insights that help reduce risk and increase margins.

Not only that, but connected construction allows the data created during design and construction to be usable into operations. Projects start digital and stay digital. However, the value of data doesn't stop at handover. Specialty contractors can utilize data long after the job is complete to make better, more insightful, data-backed decisions for future projects, or upcoming bidding opportunities, or maintenance contracts for the completed building. It's what we need to create a more resilient and responsive built environment. By bringing project data together like this, contractors can create a digital thread for every project that goes beyond making it useful for today and turns an eye toward the future.

> "Autodesk Construction Cloud is a game-changer. By breaking down silos, it makes the process of construction better by connecting project data between stakeholders enabling teams to complete projects ahead of schedule and under budget."
>
> **–Paul Godwin,**
> **BIM Manager, Marek Brothers**

Better Outcomes with Autodesk Construction Cloud

Specialty contractors that leverage Autodesk Construction Cloud set themselves up to improve project and business outcomes across the board, from cost and quality to safety and schedules—all while improving project win rates and securing additional business.

Winning More Work

Autodesk Construction Cloud provides a single platform for collaboration earlier in the project lifecycle. Once specialty contractors become comfortable in the connected construction landscape, the data collected and the collaborative processes can streamline the preconstruction process. With a connected platform approach, specialty contractors can win more work when they:

- Coordinate using the Builders Network, where reaching out to potential partners is easier than ever

- Leverage bid management systems to keep teams organized, improving collaboration

- Work from a cloud-based takeoff software solution to deliver estimates faster.

Labor Retention and Training

Labor shortages are putting a strain on the construction industry. The trades feel this strain strongly, as the shortage of specialized skilled labor continues. This puts schedules at risk and limits the number of bid invitations a contractor can accept.

With a higher percentage of their business costs tied up in labor than general contractors, the lack of available skilled professionals takes a toll on subcontractors' bottom line.

Connected construction can help alleviate this through improved labor training and retention. With a cloud-based solution, training can take place across geographies. Improved processes and greater project transparency can help increase labor recruitment and retention.

By working with a leading construction productivity platform, you are signaling to future and current employees that you are committed to building a company at the forefront of the technological shift in the construction industry.

Jobsite Safety

The construction industry is fraught with risk, and specialty contractors are often responsible for performing the most dangerous work on a job site. This makes it critical to ensure proper safety procedures, training, and inspections are central to any work completed.

Ensuring job site safety is made easier through connected construction solutions that allow specialty contractor firms to identify any potential on-site risks and to ensure safety guidelines are being adhered to.

This can all be done from anywhere at any time through mobile-friendly safety checklists and apps, paired with real-time data tracking. Monitoring safety inspections through a mobile device creates a safer job site by ensuring infractions are documented, assigned to a team member, and resolved quickly. Aggregating all problems allows the team to understand the root causes of issues and add photos or comments to help identify and prevent common problems.

Increasing Profit Margins

At the end of the day, any technological solution is only as good as its ability to increase profit margins. Connected construction helps to mitigate the risks faced by specialty contractors who have historically been forced to pay for materials upfront and invoice later for reimbursement.

By utilizing the thorough documentation of a cloud-based solution, specialty contractors can bill immediately, improving cash flow. A single system for documenting materials purchased, work completed, and dates of project changes makes it easier for teams to get paid quickly.

4 The Future of Building on One Platform

Specialty contractors are estimated to gain an additional $836.8 billion in annual sales by 2022.[1,2]

To support this incredible growth, greater efficiency, improved safety, and more predictable cash flows will be necessary to ensure that specialty firms are capable of both winning more bids and of supporting this work.

Many specialty contractors are just beginning to set up a digital strategy, moving off paper, and enhancing team collaboration. Some have already digitized and now want to reap the full benefits of technology by breaking down data silos to integrate business processes and automate manual workflows. Others have been on this journey for a while and are ready to optimize data to synthesize powerful insights and seize opportunities that come with the convergence of manufacturing and construction.

No matter where a specialty contractor lies on this journey, the importance of connection will continue to increase as the construction industry evolves in step with technology. More progress has been made in construction in the last twenty years than the preceding two hundred. With that progress in mind, it's even more important that teams choose solutions that keep them connected.

The requirements for entry into tomorrow's construction market are clear. The focus should be on lowering the risks that result from the uncertainty of work pipelines, developing complex project delivery models, and improving communication with general contractors. These optimizations will make projects more bankable, closing the gap between targeted performance and actual performance, and will equip the industry to think and act strategically instead of reactively.

The Autodesk Construction Cloud delivers the foundation to achieve those aspirations today. Autodesk delivers a platform in which any specialty contractor—regardless of size, location, sector, or capitalization—has democratic access to a new set of connected capabilities.

Across the AEC industry, the pace of change is accelerating. Digital business practices are no longer a nice-to-have; they are a business requirement. The ability to have connected, intelligent, and accessible data will determine future success. Subcontractors looking to adapt to this progressive landscape should focus on tapping into the right cloud-based solutions now to ensure the highest chance at success in the years ahead.

Endnotes

[1] Specialty Trade Contractors Global, Market Report 2019. Research and Markets: Market Research Reports Welcome, The Business Research Company, Jan. 2019

[2] Construction Market Global, Opportunities and Strategies to 2022, The Business Research Company, Oct. 2019
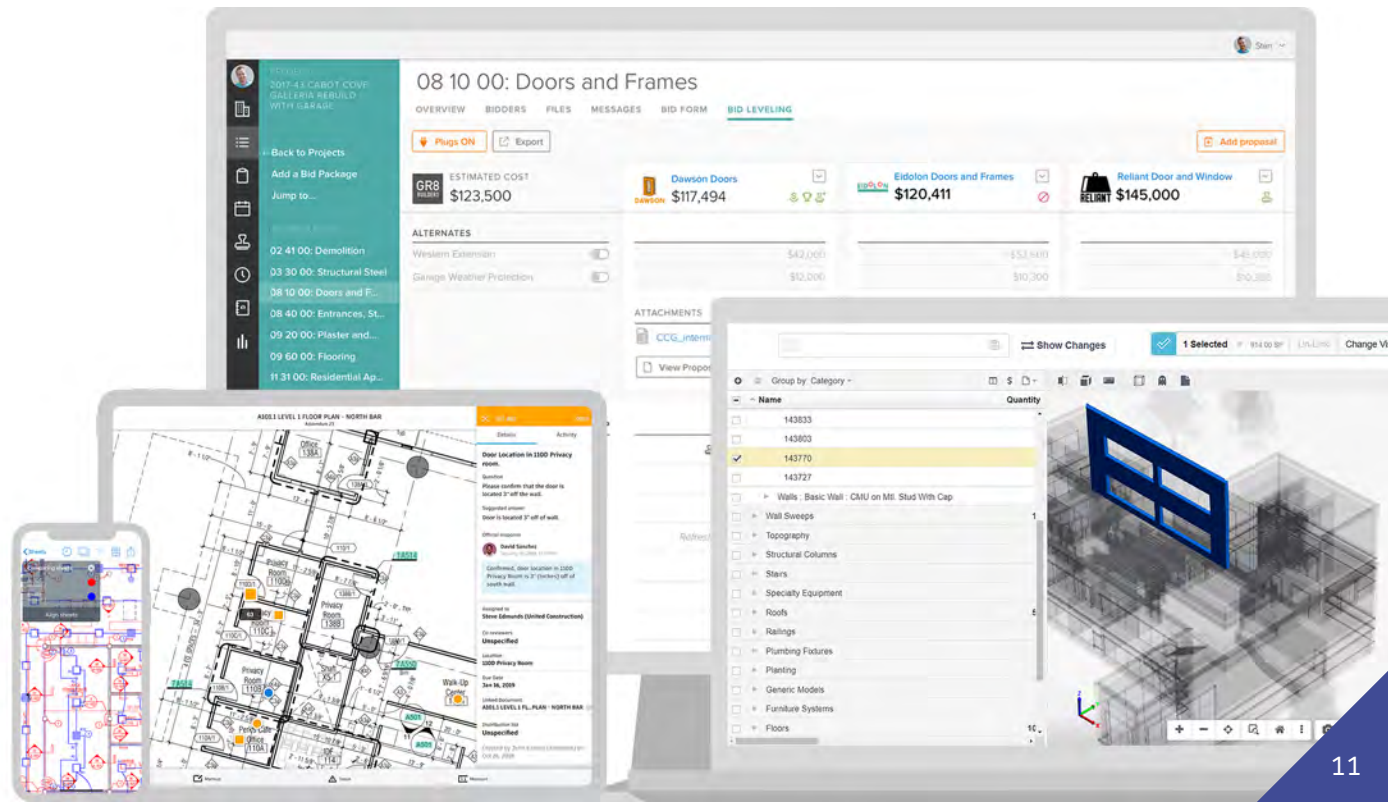
See the Future of Connected Construction

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Our industry requires solutions that connect their information, teams, and technology —breaking down data silos and disconnected processes that hinder true transformation. As we navigate the ever-present push to do more with less, we need to uncover new ways of working, enhance connected digital workflows, and incorporate advanced analytics. To support us on this journey of transformation, we must lean into tools that connect construction — from design to plan, build, handover, and operations.

Built on a unified platform and common data environment, Autodesk Construction Cloud is a powerful and complete portfolio of construction management products that empowers general contractors, specialty trades, designers and owners to drive better business outcomes. Autodesk Construction Cloud combines advanced technology, a unique builders network and predictive insights to connect teams, workflows and data across the entire building lifecycle.

While the industry experiences unprecedented transformation, our mission remains the same: to help construction teams meet the world's rapidly expanding building and infrastructure needs while making construction more predictable, safe, and sustainable. And we've remained steadfast in our promise to deliver the industry's most compelling solutions, connecting data, teams and workflows from the field. This is our commitment to connected construction.

AUTODESK.

With Autodesk software, you have the power to Make Anything. The future of making is here, bringing with it radical changes in the way things are designed, made, and used. It's disrupting every industry: architecture, engineering, and construction; manufacturing; and media and entertainment. With the right knowledge and tools, this disruption is your opportunity. Our software is used by everyone - from design professionals, engineers and architects to digital artists, students and hobbyists. We constantly explore new ways to integrate all dimensions of diversity across our employees, customers, partners, and communities. Our ultimate goal is to expand opportunities for anyone to imagine, design, and make a better world.

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