AUTODESK
CONSTRUCTION
CLOUD™

The Digital Builder's

Guide to Construction Field Collaboration

Why Software and Standards Are the Keys to Success

Table of Contents

Introduction to Field Collaboration

Field collaboration in construction is essential not just to the bottom line but also to fostering a safe and positive work environment for all teams to perform within. Teams that collaborate are working toward a common goal: respecting each other and being as open and honest as possible about all facets of the job. Field teams have a particularly difficult task when it comes to collaboration because they don't always have access to the latest drawings, communications, and project management timelines or budgets.

Collaboration with and between field teams is often hampered by a lack of communication with office teams, a desire to focus only on that particular team's outcomes, and outdated procedures. In some cases, a lack of standards and systems leads to chaos. If the field teams use their own software and documentation methods, they cannot integrate with other project teams to ensure everyone is working with the same information.

In this guide, the common challenges faced by teams in the field will be documented to illustrate why collaboration can be difficult. Methods of improving field collaboration and harnessing solutions that specifically enable field collaboration will be shared. The goal with these solutions isn't perfection; it's progress. Working toward better collaboration, adoption of strategies, and updated workflows doesn't happen overnight. But the right software and standards will get construction teams moving toward common goals as efficiently as possible.

Common Roadblocks to Effective Field Collaboration

Even if a team is particularly agile or technology-focused, small obstacles and issues always crop up to limit collaboration. While some may be technology-driven collaboration masters, others may not be as progressive. That's why all teams must work together, understanding and overcoming these common roadblocks to collaboration.

Holding on to Antiquated Systems

When each team is left to determine what software and systems they employ, integrating with the rest of the construction team can fall back on legacy methods of communication and collaboration.

For example, to coordinate with the office teams, field teams may call into the office to report an issue or a change to a drawing or plan. The office team then records that piece of information in a job log, which sets off a sequence of events. In response, the project management team may need to amend the project plan, orders, scheduling, and communications with suppliers and other field teams.

But what happens if the field technician or project manager responsible for calling in the change suddenly gets called onto another, bigger issue? What if there's a lag in placing the call to the office that causes other field teams to be working with outdated plans and blueprints? Additionally, what if the office team misses that call or makes an error inputting the data, and the field team doesn't have the chance to review the changes made?

The result is confusion, lost time, and money. Theoretically, it's "easy" for a field technician to make a phone call back to the office to relay changes at the site. But what doesn't get captured are details that only the field team can properly convey—exact blueprint changes, pictures of the issue, technical explanations for a delay, etc. A system that allows collaborative work needs more checks and balances in place.

The system should enable every team member to update plans, access the latest project direction, and work whenever they need, which may not be on the 9:00 a.m. to 5:00 p.m. work hours of the office.

Common Roadblocks to Effective Field Collaboration (cont.)

Lack of Shared Information, Goals, and Trust

When teams operate in their own best interests and don't align with the larger project goals, it often costs the overall construction project in the long run. Field teams are used to looking out for themselves because that's what antiquated systems foster: doing their own piece of the puzzle and moving on, without necessarily understanding how their work fits into the larger whole. This isn't their fault. Often, information is hidden or inaccessible to all team members, leading to a culture of distrust.

True collaboration means that all teams have access to all the information they need, right when they need it. This level of transparency isn't always available to teams working in different data systems or separate locations, or at different hours of the day.

Delegation of workflows by the project management team can be difficult. Many professionals are used to working in fear-based exclusionary workflows, where only their goals and tasks are detailed. There's no way to know who else is around them in a particular workflow and what tasks are directly impacted by their work. In handoff procedures and data uploads between field teams working in separate workflows, data can easily get lost. Without standard processes, software, and centralized communication, things get missed, field teams are without the context of the entire project, and collaboration cannot progress.

How Software and Standards Drive Success through Field Collaboration

By no means is field collaboration an easy thing to get right. It requires a foundation of trust, adoption of tools and processes by many people, and a shared desire to work together in ways that may feel foreign. Specific software and standards can be used in combination to improve all teams in the field and their collaboration with one another and the teams back in the office. When looking for software solutions, be sure they allow for the following features that facilitate field collaboration.

Access Is Universal with Cloud-Based Solutions

To better enable field collaboration, software and tools need to be accessible to teams in the field, in all locations. Mobile-first applications and cloud-based platforms are the best choices. A cloud-based solution ensures that systems can be accessed by different teams, in different offices, and at different job sites.

It can also be accessed by all different devices, from desktop computers in the office to laptops in boardrooms to tablets and smartphones in the field. All teams can access one source of truth on the cloud at any time.

To that end, mobile-first or mobile-forward software solutions used for construction collaboration make it easier for field teams to view the same level of detail in documents as the teams in the office. An architect or engineer may have a huge desktop setup where viewing, marking up, and creating blueprints is easy to do. But field teams that rely on those drawings need access to be just as seamless on their mobile devices. A software solution with mobile integration gives field technicians and project managers the same read, write, and markup abilities on their phones and tablets.

This cloud-based system that fosters universal access also solves the problem of teams working different hours. Now collaboration is much easier because team members won't need to be at their desk at 5:00 a.m. to speak with the field supervisor on a job site. The supervisor can upload their information in their workflow, and with the correct processes in place, the office staff will be alerted to the details and able to respond seamlessly as soon as they are in the office.

How Software and Standards Drive Success through Field Collaboration (cont.)

User-Friendly Applications Are a Must

When evaluating software options that enable field collaboration, try out a few packages, and evaluate them based on their ease of use. Busy construction teams are not going to use an overly complicated software package. Also, make sure that the training required to use the software in the field can be done in a couple of hours, at teams' convenience—and, preferably, right in the field where it can be put to use.

Teams want to see a return on their investment as soon as possible, so it's essential to ensure that the highest number of professionals will adopt the technology and run with it. Then management can collect feedback from workers and data from the applications to see what benefits were found. Past testimonials and use cases of the same software can be a good guide to the potential benefits. Ensure that the software solution has a good reputation, is intuitive when teams first pick it up, and provides training.

Standards and Shared Templates Increase Efficiency

Standardizing technology is a must. When teams know their workflows, systems, and templates that they work within every day, work gets completed faster, and fewer mistakes are made. To solve the common problem of field and office teams not understanding one another and working in different systems, common templates and programs between the two are a large step toward collaboration efficiency gains.

Working in the same software systems and within the same general standards decreases the likelihood of data getting lost when transferred between teams. It also saves time and energy because everyone speaks the same language, in the same software, in documents and programs that all work in the same manner.

When teams are aware of the overall workflows they are a part of and know that everyone up and downstream uses the same templates, they know where to find data, what it will look like, and who to ask when clarification is needed.

Some software systems will also give customizable templates so that forms, documents, and communications can be set up exactly as a firm requires. By using templates for data capture, all parties know what to expect when exchanging information. No time is wasted deciphering new document structures or software systems. Also, the use of templates helps keep standards in place from project to project and team to team. Field teams can then spend less time looking for data or communicating with other teams and more time getting their job done and working toward common goals on the construction site.

How Software and Standards Drive Success through Field Collaboration (cont.)

Transparency and Trust Are Fostered with One Centralized System

A centralized software system makes it easy for all field workers to access the information they need whenever they need it, and they know it will be the latest release, including all marked-up drawings. But in addition to one source of truth bringing efficiencies to the team, one system that all project contributors can access increases transparency. Project tracking software should enable transparency so that all project teams understand their role in the overall project and how they affect other collaborators.

Setting teams up together in one system also fosters trust. No team is working in isolation with their own methods or software. Shared goals can be created at the project outset for the entire team to work together and understand how their particular tasks contribute to the final product.

When issues arise or changes need to be made, there is less antagonism if everyone is aware of the situation, and the project was built on a foundation of trust. Field teams need to know they are supported by office teams and other field specialty contractor teams. When everyone is working in the same software system and understands the other teams' roles and responsibilities, there's a mutual level of respect and teamwork. No one is confused about what needs to be done, and teams are much less likely to blame each other should any problems arise when integrated in this way.

Visuals Allow for Better Communication

Finally, any software solution that is being considered to maximize field collaboration needs to allow for data to be captured through photos and video. A picture of the job site issue can explain a lot more than a verbal phone call back to the engineering office.

Everyone carries a smartphone most of the time, and allowing for a quick photo to be uploaded to the cloud-based software system is an easy way to capture data and communicate with teams that aren't at the job site.

Another easily rectifiable frustration is that of field teams feeling misunderstood by office teams. Plans are drawn up in offices and are done with all the data on hand, but when field teams get their boots on the ground, things may have changed, or new information may have come to light. Using a software tool to mark up plans in the field, take pictures, attach them to communications or drawings, and even geo-tagging a particular picture to a job site is hugely valuable. Information is rapidly transferred back to the design teams, and they can help the field teams solve any issues by "seeing" exactly what the field teams see.

# Software Solutions Should Enable Teams in the Field

Above all, teams don't want new software and systems to be an additional thing they need to learn in their busy days. Instead, software should be presented to teams in a way that shows the benefits, time savings, and ease of use. Training methods should be effective and efficient, so teams can get back into the field and put those tools to the test. The ultimate way to maximize adoption is to trial the software in the field. Great tools will quickly show their users how their workdays can improve with better collaboration.

See the Future of Connected Construction

www.autodesk.com/construction

In 2018, Autodesk announced that construction would be a key focus area to help our customers on their design and make journey. To capitalize on the opportunity, Construction became its own CEO-staff level organization, Autodesk Construction Solutions. This unique structure is comprised of product development, customer success, marketing, and field operations. The organization is designed to move at the speed of the market and serve customers on a level playing field with other solution providers. Autodesk Construction Solutions offers products that cover the entire construction lifecycle, from design through plan to build and operate, including the Autodesk Construction Cloud which brings together our cloud-based solutions Assemble, BIM 360, BuildingConnected and PlanGrid.

Our vision is to create a vibrant construction industry where predictability and productivity are exponentially increased, while jobsite waste is proportionately reduced. The time has come for platform that will empower an industry transformation. Our mission is to help construction teams meet the world's rapidly expanding building and infrastructure needs, while making construction more predictable, safe and sustainable.
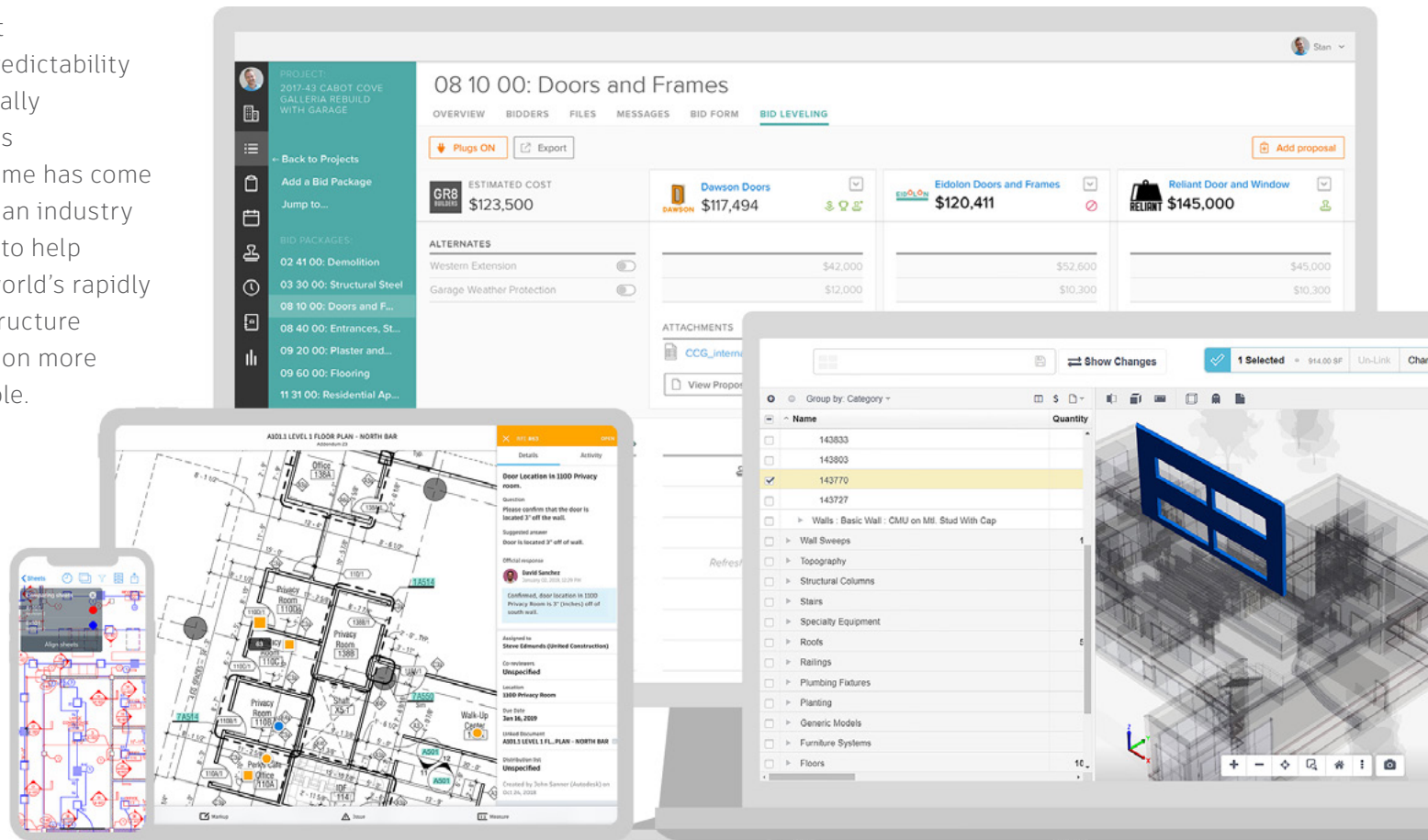
AUTODESK

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.

Connect with ACS

United States
+1 (866) 475-3802
construction.autodesk.com

Australia & APAC
AUS +61 1800 314 435
acs.apac@autodesk.com
construction.autodesk.com/au

UK & EMEA
+44 808 1892 253
acs.emea@autodesk.com
construction.autodesk.com/gb