4 Ways to Empower the Site Team with BIM

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Introduction

Historically, tracking work completed on construction projects was a tedious process. Site teams would print out 2D sheets and walk through construction sites marking the status of various construction elements on the sheets manually. Later, these teams would return to their site office to manually mark those items again in their 2D solution to reflect completion. This double entry was laborious and frustrating; plus prone to errors, and disjointed information.

Today, new technology helps teams improve these outdated, time-consuming processes by giving site teams the power to use Building Information Modeling (BIM) technology. The right cloud-based technology can streamline processes, improve project collaboration, and increase workflow efficiency.

In the following guide, construction teams will learn four ways to better empower site teams with cloud-based BIM technology. First we'll understand how the old modes of collaboration between the BIM team and the site team worked, then we'll see new ways that improve those outdated processes.

The Old Way of Tracking Work on Site

Traditional methods for tracking work were time-consuming and rely on manual processes. These methods lead to disjointed data silos, where information was housed in spreadsheets sitting on computers or in a file cabinet.

Additionally, manual methods made it difficult to keep track of complex projects. This had a negative effect on both field and BIM teams.

Site teams faced a giant time drain. It took numerous team hours to manually survey what had been built, mark it up on paper, and then transfer information on paper into a digital system that would eventually be shared with the project executive and the rest of the project team.

For BIM teams, traditional methods were fraught with issues as well. The process was equally time-consuming for teams who had to input work back into their models manually. It made it easy to miss things, creating costly mistakes that compounded project difficulty later.

The New Way of Empowering Site Teams

While traditional methods for tracking work rely on manual processes that leave both Site and BIM teams frustrated, new methods are emerging that utilise cloud-based technology to improve tracking for everyone. As a result both teams can work collaboratively.

By providing a visual model of how the project needs to be built, site teams can better understand project complexities that are hard to envision on 2D drawings.

Empowering site teams means removing tedious work and re-work from their plate by letting them track work just once, from anywhere in the site, without the need for pen and paper.

The result is that site teams can better leverage the "I" in BIM. More accurate information means improved project controls, construction quality, team collaboration, and work processes.

With the right cloud-based solutions, BIM teams can provide site teams with the information and tools they need to access, analyse, and share BIM data on their own time with intuitive tools.

This makes it easier for site teams to work independently of BIM teams who are often strapped for resources. No longer do BIM teams need to worry about being the bottleneck to a project, as site team members are free to access everything they need from one convenient, digital location.
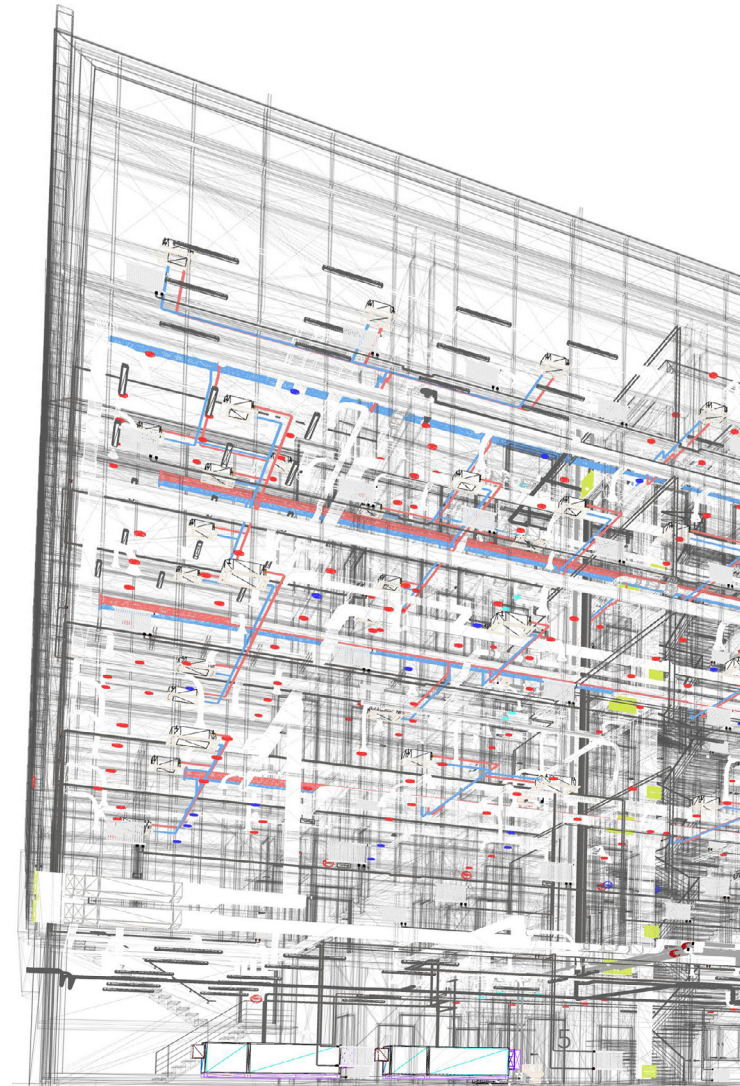
Solutions Driven by Technology

Today, many of the most time-consuming, error-riddled construction processes are being solved using technology. Armed with the right solution, site teams can better manage project information and collect construction data, allowing the BIM teams that use this data to keep projects on track and mitigate scope risks.

Here are four ways that the right technology-driven solution can empower site teams on every project.

1

Custom Views

New BIM solutions make it possible for site teams to create custom views of any model. These custom views can be tailored to meet exactly what any member of the site team needs.

BIM teams can break down information by scope and share views of the model to any stakeholders who need it. This allows every team to see the information they need in a straightforward, easy-to-understand view.

Custom views are a game-changer for site teams who previously relied on printed 2D documents. Teams can condition models or embed relevant construction data to assist with classifying and organising project information, and make those models accessible to the entire organisation. User-defined properties can be added to the model without creating parameters in Revit. Then, models can be organised around relevant data and views can be shared that are pre-filtered for the daily needs of the site team.

This increases efficiency and makes it possible to create a visually rich progress report of completed work directly tied to project quantities.

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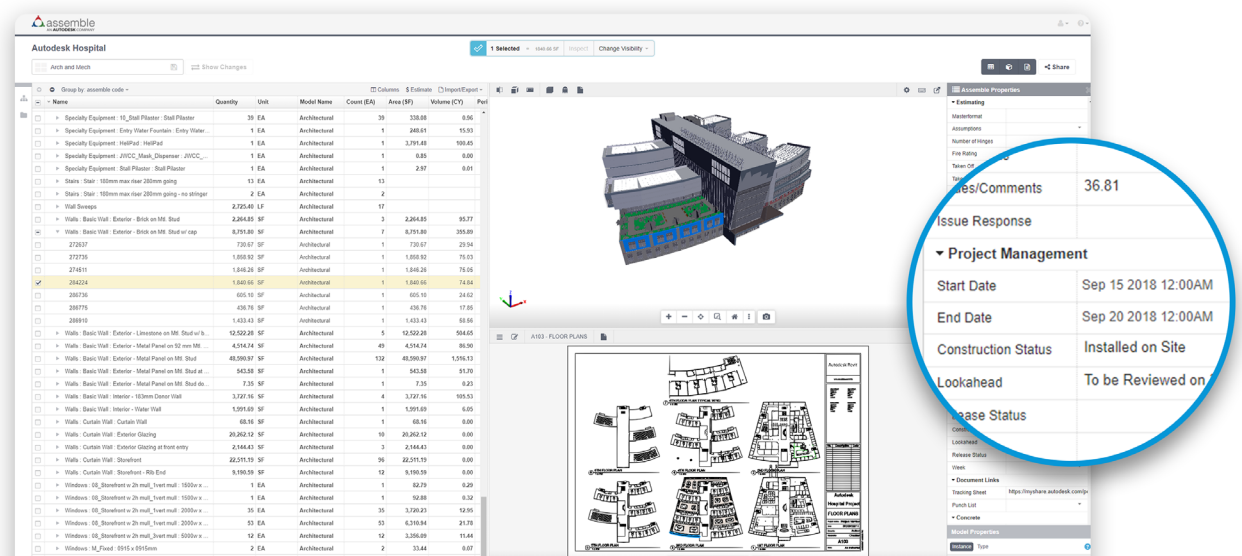
② Model Conditioning

Models are only useful when teams are able to condition them for their needs. With the right technology, BIM/VDC team members are able to add information to a model before they share it out to the field.

This can empower all stakeholders – regardless of BIM experience – to access, analyse, and share BIM data for improved project outcomes.

By making models accessible through the cloud and, more importantly, simple to understand and use, construction teams can organise models around relevant data. That data can be pre-filtered for daily needs, used to engage and update live field information from the site, and connected to conditioned model data and quantities to project reports in real-time.

Senior Project Engineer at McKinstry Spencer Hobson saw direct benefits from this new method of model conditioning.

"I can sort and filter the data from Assemble by installation status and activity IDs in seconds to see quantities installed. With the manual take-off methods, it would take hours, and when we would go back and double-check, the numbers would come out different every time. With Assemble, we have extreme confidence in the number we are reporting."

–Spencer Hobson
 Senior Project Engineer, McKinstry

Teams can select model objects and status from the site on a mobile device. Connecting status to model objects provides a visually rich progress report, with automated colourisation directly tied to the project quantities.

All this information is updated for the office team immediately, improving collaboration and transparency.

Simultaneous access plus offline and online access is one of the many ways Assemble supports information sharing. Trujillo of AIA Arquitectos e Ingenieros Asociados S.A has valued this increase in collaboration immensely, "With the always-on accessibility of Assemble, I can take notes directly from the field. It also enables more collaboration with stakeholders as everyone has access."

3

Cloud-Based Technology

Historically, site teams have been reliant upon paper-heavy processes to get their work done. Cloud-based technology helps eliminate that manual work and re-work.

Not only can cloud-based solutions make it possible to make digital changes on an iPad rather than on printed sheets of paper, but these systems can also work without internet connections by syncing changes made offline to the model once teams are back online.

This is a game-changer for site teams who often face spotty or unreliable connectivity in the site. This helps break down silos, reduce input errors, and increase the speed at which teams can adjust based on information received.

It's also incredibly important that the solutions the site teams implement are user-friendly. It doesn't matter how accessible your solution is if it's not easy to use in the site.

As Assemblin put it after implementing the cloud-based solution Assemble:
"Viewing the 3D model on an iPad in Assemble is a big step for us in terms of digitalisation. Assemble provides a more efficient and faster way to track the installation status. With Assemble, we can have a holistic view of the project in a matter of minutes, where before, we had to go out to the field and manually highlight and mark up the drawing, and then go back to the office."

4

Dashboard Integration

Construction projects are complex and site teams deal with heavy amounts of data. The beauty of new technological solutions, such as Assemble, is that they integrate with other existing data sets.

For example, with Power BI dashboard integration, Assemble makes it easy for teams to take multiple data sources and use different templates to create reporting dashboards. Dashboards can be tailored to the site team, executives, and any other stakeholder. This ensures the right information is delivered to these teams in a meaningful way.

Having a central cloud-based location where all data can be surfaced is incredibly powerful. Site teams can access real-time data that can be drilled down into to improve project insights from anywhere, at any time. As site teams feed more data back into the system, the centralised dashboard is automatically updated the moment the data syncs.

Gone are the days of numerous spreadsheets, unending piles of paperwork, and time-consuming reports. Instead, every single stakeholder can access project updates in real-time from one location.
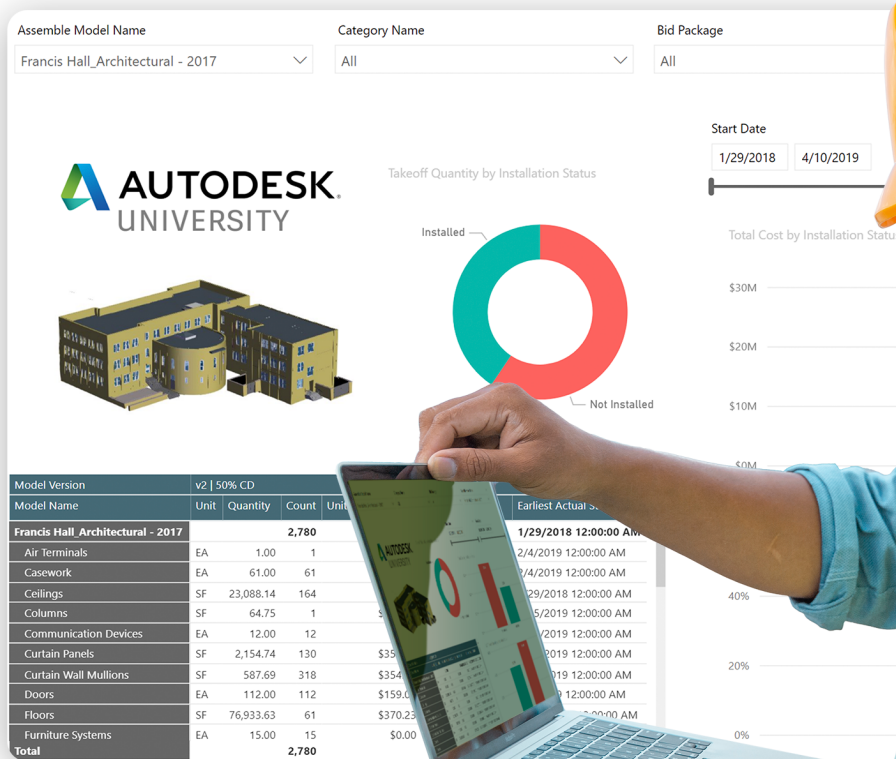
Conclusion

As Spencer Hobson, Senior Project Engineer at McKinstry said, "Instead of spending eight hours a week on Earned Value Tracking, we've lowered that to four hours. In addition to a 50% time savings, Assemble has increased data quality by eliminating redundancies in tracking. We used to say that an earned value was within 10%, but now we can say it is within 3%."

The benefits of using an integrated cloud-based solution for project tracking are immense. Site teams can be empowered to better manage data and information, which translates to higher efficiencies and collaboration across all teams.

Through the use of a cloud-based system, teams can turn their focus to what really matters — accurate project tracking — rather than wasting time on manual, tedious processes.

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 main 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.
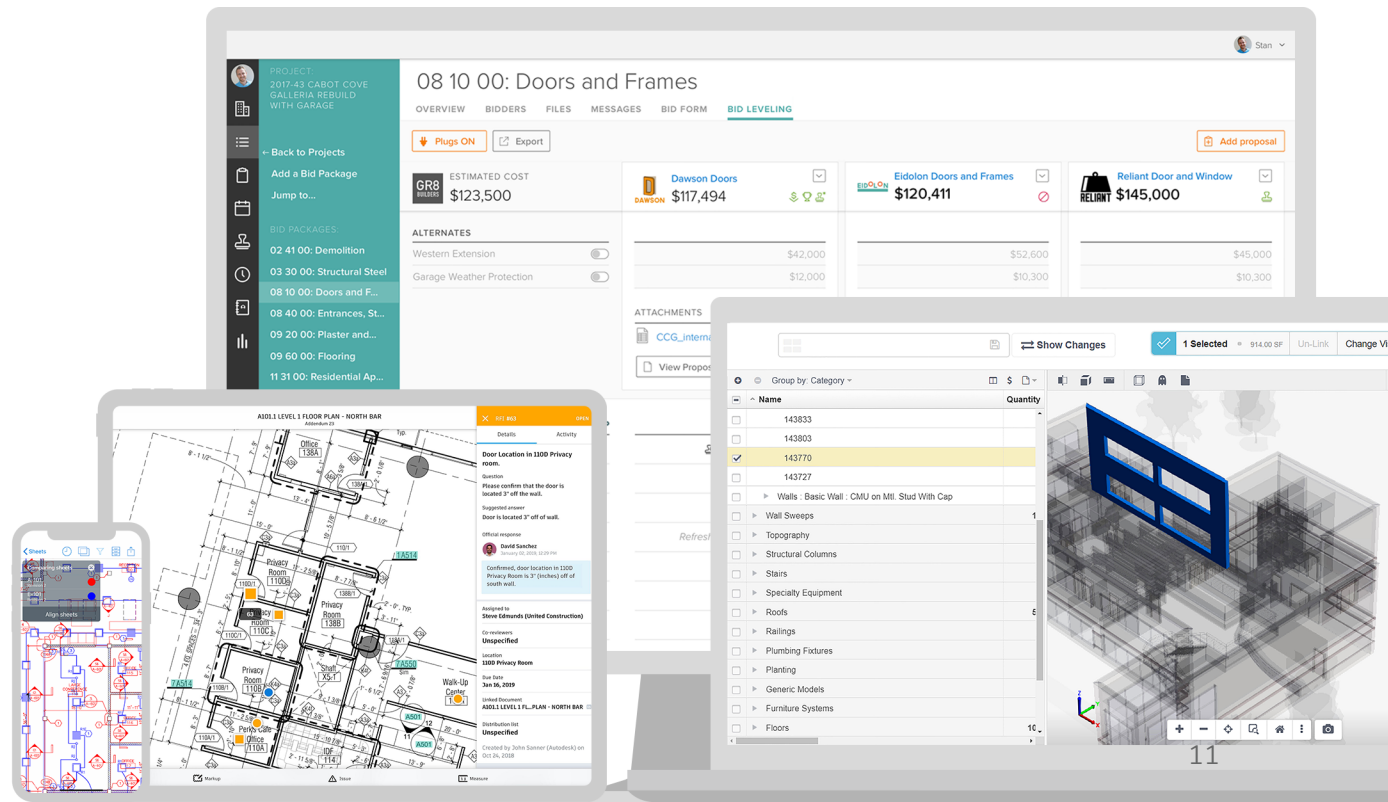
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