Field intelligence

Max Bögl Group takes the intelligence of the BIM process into the field to save time and enhance quality

Introduction

Germany’s largest privately owned construction company, Max Bögl Group, is committed to adding value for clients at every step in the construction process. The company embraced Building Information Modeling (BIM) more than a decade ago. As BIM has advanced, so has the firm’s innovative use of intelligent models.

Max Bögl Group is also one of the first construction firms in Germany to take BIM into the field with the Autodesk® BIM 360™ Field cloud-based service. After piloting BIM 360 Field on a shopping mall construction project, the firm is excited about the way the software empowers its people and increases visibility into projects.

Maximilian Schütz, BIM manager in Max Bögl Group’s corporate development and BIM department, explains: “Our processes were already based on BIM. We’ve used it in the office to understand, plan, and improve projects for years. But the intelligence didn’t extend into the field, where many processes were based on paper. We’ve always been committed to innovation, and the next logical step was to extend the intelligence of BIM throughout the construction site with BIM 360 Field.”

The challenge

As Max Bögl Group began constructing a shopping mall that the firm would own and operate, Schütz saw an opportunity to pilot using BIM in the field. The company wanted to see if BIM 360 Field could improve two crucial but inefficient processes: quality assurance (QA)/quality control (QC) and safety inspections. These traditionally paper-based processes rely on checklists and communication with subcontractors to resolve issues. According to Schütz, safety inspectors could spend as much as 40 percent of their time documenting and communicating inspection issues.
Inspectors spend 20 percent more time in the field thanks to BIM 360 Field

"Getting information to and from the point of construction typically requires people walking back and forth to the construction office with paper," says Schütz. "It’s quite time consuming. Then, there’s the frustration of having all this intelligence in the BIM model, but you can’t share or access it in the field. You see the inefficiencies caused by these issues clearly in inspection processes. We decided to find out if BIM 360 Field could provide an answer."

The solution
The Max Bögl Group team began by linking BIM 360 Field to an aggregated project model. Maintained in Autodesk® Navisworks®, Manage software, the model brings together multiple file types, including Tekla®, Autodesk® Revit®, SketchUp, and Siemens NX™ files. This model is then uploaded to the cloud using Autodesk BIM 360™ Glue® and linked to BIM 360 Field. When used with an Apple iPad® mobile device, BIM 360 Glue lets Max Bögl Group share the model with the team, and BIM 360 Field delivers anywhere, anytime access to the project model along with data related to issues, tasks, project updates, and checklists.

The firm saw winning support from the construction management team as crucial to the success of the pilot. Schütz explains how the firm presented the solution to the team: "We asked the construction manager what his top problems were on a typical job. We explained and demonstrated the challenges BIM 360 Field could address. He realized the solution was designed to solve his problems, and that helped him to identify with the software."

Schütz adds, "Field data management can be a big time drain on any job. BIM 360 Field brings data together, and lets the construction management team and inspectors take it with them throughout the site. It’s like a portable project management toolbox."

QR codes link models to the site
The Max Bögl Group team realized that having access to the project model at the point of construction would save inspectors and supervisors time. To accelerate the flow of information even more, the team has installed more than 350 QR (quick response) codes on site.

"By scanning a code with the iPad camera, BIM 360 Field takes the user to the equivalent spot in the 3D model," says Schütz. "Data and objects are linked to the 3D model. You can gain instant access to CAD attributes, issues, checklists, photos, and drawings relevant to where you are on the construction site."

Faster inspections and better visibility
By managing its QA/QC processes in BIM 360 Field, Max Bögl Group has been better able to maintain the pace of construction. Inspectors use checklists within BIM 360 Field as they review completed tasks for compliance with the firm’s quality standards. They can take photographs and then notify subcontractors of issues from within BIM 360 Field. Subcontractors see the notifications and mark resolved issues as complete within the solution. The inspector checks the issue in the field, and for resolved issues, lets construction proceed.

"Inspectors have their checklist, the model, and 2D drawings at their fingertips," says Schütz. "They can send notices to subcontractors immediately. BIM 360 Field saves a tremendous amount of time, and issues that could slow construction are resolved more quickly."

According to Schütz, the safety inspection process has improved as well: "Safety inspections required quite a bit more documentation. Inspectors were forced to spend too much time in the office on paperwork. Now, much of that documentation occurs remotely using BIM 360 Field, with 20 percent of their time or less spent in the office."

The result
Since launching its pilot, Max Bögl Group has expanded the use of BIM 360 Field to more projects. "BIM 360 Field improves the way we manage construction projects," says Schütz. "Now, we can track issues easily and see how subcontractors are performing. If there’s a problem with the building in the future, we can research what happened during construction easily. All issues are linked to specific locations in the model."

He continues, "BIM 360 Field saves the construction management team and inspectors substantial time every day. It adds quality while subtracting time from construction management."

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— Maximilian Schütz
BIM Manager
Max Bögl Group

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