

Turner Construction Company

Customer Success Story

Autodesk® BIM 360® Glue

Autodesk® Revit® Architecture

Autodesk® Revit® Structure

Autodesk® Navisworks® Manage

Autodesk BIM 360 Glue is not just visualisation. It supports information collaboration and has improved our efficiency.

— Lincoln Wood
Engineer
Turner Construction Company

Collaboration takes off in the cloud.

Turner Construction Company uses Autodesk BIM 360 Glue to help keep a complex construction project on track at the Oakland International Airport.



Project Summary

Founded in 1902 by Henry Turner, New York-based Turner Construction Company has grown to become one of the largest construction management companies in North America. Today, the company oversees an average of 1,500 projects each year, and employs 5,000 people throughout the world. Turner Construction Company is a leading advocate in the development and utilisation of technology tools, and green construction practices, with the largest number of LEED-accredited staff and largest volume of green construction activity in the United States. To that end, the company makes use of Building Information Modeling (BIM) to create information-rich virtual models to address potential construction issues before actual construction begins, ultimately improving project outcomes. In 2011, Turner Construction Company was recognised by *Building Design & Construction* for having the largest volume of projects utilising BIM tools (£2.7 billion).

Turner Construction Company was tapped in early 2012 to build the new £15 million central utility plant for the Oakland International Airport in Oakland, California. Although the shell of the 770-square-meters plant is relatively straightforward, the structure will house an extremely intricate network of electrical, heating, ventilation, and air conditioning systems, all of which are critical to keeping the airport running efficiently around the clock.

The Challenge

"It's a complicated facility, with very dense mechanical and electrical scope," says Lincoln Wood, engineer at Turner Construction Company. "Building it requires a complex coordination effort because the efforts of many subcontractors must be integrated. Much of the equipment—the electrical switchgear and mechanical equipment, including boilers, pumps, and cooling tower—is interdependent. Everyone—from the architect, contractor, and subcontractor to the owner and facility manager, must be in complete agreement—from the submittal stage all the way to delivery, installation, and operation. If something isn't right, there's the potential for a domino effect that compromises our entire timeline and budget. There is a lot of risk."

The Solution

To improve cross-disciplinary collaboration and decision making during the pre-construction process, Turner built a data-rich 3D model of the central utility plant using Autodesk® Revit® Architecture and Autodesk® Revit® Structure software, and then brought it into Autodesk® Navisworks® Manage project review software. The firm decided that BIM-based collaboration needed to continue during the construction phase in order to help keep the project on schedule. So Turner leveraged cloud-based BIM with Autodesk® BIM 360® Glue to give its diverse team of subcontractors access to the 3D model wherever and whenever they needed it.

Autodesk BIM 360 Glue helps Turner Construction break down collaboration barriers and promote timesaving.

Wood explains, “Autodesk BIM 360 Glue has been a very big part of the Oakland Airport project. Users are able to visualise the building, and walk through all areas virtually. It helps to break down the barriers that hamper collaboration between our team and the subcontractors. Not only does it promote timesaving, there is value in the service’s ability to facilitate more accurate project documentation and record keeping. The benefits are obvious to all of us.”

Easier, More Secure Collaboration

Although some of the core project team members had never worked in a 3D environment before, they quickly got up to speed. “With BIM 360 Glue, it’s not just a quicker learning curve,” says Tyler Goss, regional virtual design and construction manager for Turner Construction Company. “It’s the speed of adoption. People who I never would have expected in a thousand years to be able to pick up and engage with a 3D model now love it.”

“BIM 360 Glue really clicked for people,” says Wood. “It speaks to both the foreman out in the field and the engineer in the office in a way that’s just direct. It’s clean. It’s simple.”

According to Wood, part of the reason that subcontractors felt more quickly at ease collaborating in Autodesk BIM 360 Glue was because they were confident that it provided a more secure working environment. Autodesk BIM 360 Glue offers custom permissions to a user’s needs and ability, enabling appropriate access to the model, whilst helping to safeguard against unwanted changes. “Just a few clicks, and you are in the model, and it feels secure,” he explains. “BIM 360 Glue retains a history of each model version that can be accessed at any time. There’s a feeling that the information is safe and always accessible without any tampering ability.”

Accelerated Workflow, Improved Decision Making

By incorporating Autodesk BIM 360 Glue into its pull planning sessions, the project team was able to better streamline its workflow, whilst promoting more informed and accurate decision making. With support from an intelligent 3D model, subcontractors are better able to quickly discover any major problems, collaborate on solutions, and keep the project moving forward.

“All of the subcontractors come together at critical path junctures during construction to re-evaluate and confirm the schedule for the next phase of work,” says Wood. “We start by determining the end goal for the phase and work backwards, getting everyone in the room in agreement. Using Autodesk BIM 360 Glue, I’m working with a live model. As decisions are made, everyone can see what’s happening.”

In Wood’s view, having a more accurate model available helps the team avoid any confusion or guesswork. “By consolidating all of the information in one model,” he says, “no one is guessing which version is the most current. To me, that makes Autodesk BIM 360 Glue a powerful coordination engine that helps us minimise any rework. The software helps keep everyone on the same page.”

Bringing 3D Visualisation to the Field

To further enhance cross-team coordination, Turner made Autodesk BIM 360 Glue available to subcontractors on the job site, through an app available on Apple® iPad® mobile devices. “The mobile app is a lot more dynamic than software that can’t leave the office, because it ties everyone together at the point of delivery,” says Wood. “There’s the foreman in the field, looking at the iPad during a scheduling pull planning session. So is the project manager who is the primary decision maker regarding money, timing, and commitments, along with the detailer, who could potentially be back in the home office

editing shop drawings and submittals, or even adding comments—all of these people are actively participating in the same meeting.”

“Having Autodesk BIM 360 Glue on the iPad helps bring BIM visualisation to the people who are actually building the building—they have great ideas, but have traditionally lacked a way to share them efficiently,” says Wood. “The mobile app is the next horizon of coordination and communication with the field. As a contractor, I think the field is in a position to really leverage this technology in exciting ways.”

The Result

Currently, the Oakland airport utility plant project is almost halfway through completion and progressing on schedule and to budget, thanks, in part, to the accelerated workflow and informed decision making supported by Autodesk BIM 360 Glue. Turner Construction Company is also planning to use Autodesk BIM 360 Glue for the next phase of the Oakland airport construction project, a retrofit of Terminal 1, which will also involve complicated logistical components, including coordinating with the U.S. Transportation Security Administration. “To me, it’s a no-brainer,” says Wood. “The scope of work is much bigger and there’s going to be a lot of coordination. Autodesk BIM 360 Glue is not just visualisation. It supports information collaboration and has improved our efficiency.”

Learn more

Learn more about Autodesk BIM solutions at www.autodesk.com/bim360.

To learn more about Turner visit www.turnerconstruction.com.



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Images courtesy of Turner Construction Company