



Customer Story

Trinity Construction & Design Accelerates Layout and Ensures Accuracy with Trimble Ri Robotic Total Station

Trimble Ri



Overview

Trinity Construction & Design (Trinity), a Sarasota, Florida-based custom home building firm, was founded in 2010 by Michael Coccozza. The company focuses its business on four primary pillars - integrity, transparency, organization and quality - which help ensure a successful project, every time. Their knowledge and understanding of the building process is expertly coupled with integrated technologies and management systems to further enhance the building experience and overall outcome. Mike Coccozza's twin brother Jesse, vice president and project superintendent at Trinity, is responsible for managing day-to-day operations and ensuring the company's projects are running on time and on budget.

More than 10 years ago, the company began integrating Building Information Modeling (BIM) into its workflow using Trimble Sketchup, a 3D modeling tool that brings 2D plans to life for its carpenters. They initially used it to model roof truss assemblies and to prefabricate roof sections on the ground and then raise them up into position. As their projects became more detailed and complex with framing models, they fully adopted Sketchup as part of their home building process. Every house they build is modeled in Sketchup as a way to vet their plans and make sure there are no conflicts or issues before the building begins.

Integrating BIM and Layout

The company works primarily with architects and interior designers on the design portion of each project to ensure the highest quality outcomes. Once they've developed the designs in Sketchup, the next step is to lay out the reference points from the design drawings onto the project site.

Mike and Jesse knew that in order to build accurately and efficiently, they needed to do as much of the layout themselves as possible. This is a unique approach for Trinity as most home builders usually put

the onus on subcontractors to layout their work. They found that since subcontractors are typically not involved in conversations with the client, architects and interior designers, they didn't always have a full picture of what was planned.

They had been doing layout manually with traditional construction lasers and chalk lines, which would typically take three to four days per project. As technology innovators, they were looking for a way to accelerate the layout process and ensure the accuracy of the points they were laying out.



They decided to purchase a Trimble Robotic Total Station (RTS) and began using it for layout and in-process reviews to confirm all dimensions and layout were being done precisely and accurately.

In early 2023, Jesse learned about the Trimble Ri, a new RTS product, from Jeremy Horn at BuildingPoint Florida, a Trimble reseller. The Trimble Ri offers extended capabilities, including a longer laser range, an eye-safe laser pointer and improved target tracking, for unmatched accuracy and accelerated layout. The instrument can be operated remotely using a tablet or controller, so one person can handle even the most complex layout tasks. With Trimble VISION™ technology, integrated digital cameras and instrument mastery ensure accurate and quick target detection and lock.

Trimble Ri's self-calibration and level detection ensure accurate measurements every time and reduce the need to send the total station in for service, which means less downtime on the jobsite.

It is also integrated with Trimble FieldLink software, which connects the data from the office to the field. This enables Trinity to document problematic field conditions with an image, location data, and text notations to quickly and efficiently get answers to questions in hours versus days or weeks. They can also easily export a BIM model from Sketchup into the Trimble FieldLink software to view and execute field stakeout routines, reduce errors, maximize productivity, and duplicate design intent.

Accuracy, Efficiency and Collaboration

Since integrating the Trimble Ri into their workflow, Mike and Jesse have experienced increased efficiency and accuracy in their layout process.

According to Jesse, "The old way of holding a tape measure and marking lines leaves a lot of room for human error. Now, using the BIM models and Trimble Ri to perform all our layout ensures that everything is going up as efficiently and accurately as possible. Our layout process used to take a few days and can now be done in just one."

It also makes it easier for Jesse to coordinate their work with other subcontractors. By doing all of the layout upfront, he doesn't have to schedule time for the subcontractors to do it beforehand and instead they can come to the site ready to go and

immediately mobilize their crews. It also reduces the amount of mistakes that can happen which ultimately translates into an increase in profitability.

"It helps us understand our project and quickly explain it to the subcontractors. When we do QA/QC reviews, we can see if the work is advancing and quickly verify items are going up correctly," added Jesse. "We can also catch errors more quickly to reduce the amount of rework."

Using Trimble FieldLink features on the tablet, Jesse can mark points along a line and also offset lines to identify areas that are cast in place or within concrete columns. For example, often there is already steel coming up from the footer that is 1 1/2 - 2 inches away from where the edge of the column needs to go. If the laser prism doesn't fit that close to the steel, they are unable to get an exact point. With the Trimble FieldLink software they can do an offset line to bring them straight through to create intersections rather than trying to identify an exact point.

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Standing Out in a Competitive Market

Mike and Jesse have transformed how they build their models and can now provide more clarity among all of the key stakeholders along the way from design to build to completion. The new technology has also changed what Mike looks for in hiring new employees. The challenge is finding people who know how to use the technology. They used to hire builders and train them on the software, but now they are also recruiting people with an existing knowledge of the software and training them to be builders.

Mike explains that in the luxury home building industry, clients are very discerning. And, there are several reputable builders in town that have been in business for a long time and have built a lot of houses. For Trinity, using Sketchup and the Trimble Ri has become an incredible sales tool that differentiates their young company from the incumbents in the market.

“These tools have really set us apart. The architects are blown away when we can show them how we can ensure an accurate build,” added Mike. “Trimble Sketchup and Trimble Ri have been a major factor in our ability to take over the market in our area. 100%. No questions asked.”

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