Verifiably a Leader

Texas concrete specialist taps dual-purpose instrument to improve key facet of QC effort

A prominent player among concrete contractors in Texas, TAS recently marked four decades of service, providing high-quality, on-schedule, turnkey concrete solutions for customers throughout Texas. According to Francisco Garcia, TAS's Senior Field Engineer, each one of those commitments is threatened should any component of their work be called into question.

Company
TAS Concrete Construction
Houston, Texas

Project
High-Rise Construction
Houston, Texas

Topcon Products
GTL-1000 scanning robotic total station

Topcon Dealer
Capital Surveying Supplies
Houston, Texas

"Verification has been a regular thing for us," he said. "In the past, that usually included generating a series of topos to serve as an as-built immediately after each slab or deck was completed. However, a two- or three-man crew working a 10 X 10 grid on a 100,000 sq. ft. slab, is a time-consuming, labor-intensive process with an end-product that is still somewhat limited in scope."

"Using that approach, we would get a point with data every ten feet," said Duane Collier, TAS's director of field engineering. "Unfortunately, that leaves areas in which no elevational data is available. The GTL-1000, a scanning

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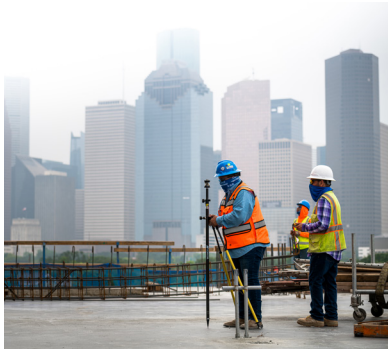
robotic total station that was suggested to us, was something that could not only serve us much better — it could also save manpower."

The GTL-1000 combines the strengths of a full-featured total station with those of a compact laser scanner to provide easy, single-operator layout and scanning. One operator can draw upon the inherent strengths of the total station, specifically prism tracking and accuracy, to lay out points — even in challenging construction environments — and, with the press of a single button, initiate a data-rich scan. As a result, rather than having a limited number of points gathered from a 10 X 10 grid, the user has millions of points at their disposal and available for subsequent use.

The list of reasons for a company like TAS to prove their accuracies upon completion is lengthy; few, however, have anything to do with the quality of their work, according to Pete Black, the company's area general superintendent.

"We are currently working a mixed-use high rise in Houston, and on a job like that, there are a lot of trades coming in after us," he said. "It's not uncommon to see piles of sheetrock or other heavy equipment on a recently poured slab. Post-tensioning of a slab can also change it, as can inadequate post-shoring. All of that is out of our control."



Soil conditions such as those found in Texas, can also cause a slab to heave as much as three feet as moisture increases, affecting its integrity, said Black. "So, we need verifiable proof — and documentation — that the work was within tolerances when we stripped the deck. The scanned data saves us the time and cost of doing any re-work — a huge benefit."

The one-person operation of the new GTL solution is a reflection of the overall manpower savings it represents. The typical process for generating a topo includes two people: one on the total station and one to assist while the topo data is being gathered.

> "With this new instrument, one person can cut the time of a conventional topo in half and the extra day of time and labor for the FF/FL is eliminated. That's a savings of around 60% in labor costs per pour."

"On the second day, however, we would bring in a third person to help create the Floor Flatness/Floor Levelness (FF/FL) report," said Edgar Valenzuela, a TAS office field engineer. "With this new instrument, one person can cut the time of a conventional

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Having a wealth of information from the GTL at their disposal yields a number of additional benefits. Though scanning subgrade is not common for TAS, they have done so on some larger projects — and were glad they did.

"In such cases, we scan to confirm that the elevation is where it needs to be," said Valenzuela. "But having that scanned data available has made us popular with many general contractors. If a dirt contractor is suspected of failing to provide material according to spec, that GC can come to us saying: 'You already have the info, send it to us.' That accountability has been good for both parties and has resulted in us getting probably 30% of our work this year from referrals. People are recognizing the value of what we have to offer through this data."

A **full-length version** of this story is on the Topcon website.

Watch the video of TAS Concrete on the The Allen Tower Project in Houston, Texas here. Visit the **Topcon YouTube channel** to watch videos on on Topcon construction technology.