Achieving Higher Accuracy in Construction Projects in a Shorter Time




Across the residential construction industry, tighter government building regulations and increasing customer demands are creating a need for digital layout techniques to achieve the highest productivity and accuracy.

Managing and planning living spaces is becoming more and more complex due to decreasing space for new buildings together with increasing customer demands on design and comfort. Across the residential building industry, including single- and multi-family housing construction, there is a growing need for construction companies to be ready to deal with multiple building regulations regarding environmental protection and living space optimization.

Especially in the luxury single-housing construction industry, these regulations have to be combined with special designs and smart ways of construction to fulfill the requirements of demanding customers. To satisfy the needs of today's residential building construction industry, a transition from time and labour-intensive traditional analogue layout methods, such as tapes, string lines, batter boards and chalk lines, to modern digital layout techniques is inevitable.

Mike Sharp & Son is a general contractor company for luxury residential single- and multi-family houses in the United Kingdom. Established in Wallingford and founded in 1980, the company looks back on close to 40 years of development in the building construction industry. Increasing government building regulations and design requests on the customer side require digital layout techniques to achieve the highest productivity and accuracy.

Mike Sharp & Son look back to close to 40 years of development in the building construction industry.

Witnessing the Development in Building Construction

Mike Sharp, CEO at Mike Sharp & Son explains, "The demands of our customers have increased a lot in the last couple of years. The rising complexity in the designs of our houses made us think about alternatives in our layout techniques to fulfill customer's requirements." Sharp explains how the layout accuracy for the inner walls is extremely important: "For a kitchen manufacturer, for example, a deviation of just a few millimetres between two walls means additional rework. Additional work that costs time and money and, in the worst case, unsatisfied customers."

Matthew Sharp, working in the family company, is responsible for the layout measurements of all the trades involved in the building projects – from defining reference points to starting the actual design, laying out the outer and inner lines of the house, and defining the fall of sewer lines. With no surveying background, Matthew Sharp received his training on construction layout tasks on various construction sites. An easy-to-use but highly accurate construction layout solution, designed specifically for the building construction industry, helps him to do layout tasks efficiently.

Residential single-family houses designed and built by Mike Sharp & Son.

Digitizing Construction Layout

Mike Sharp & Son purchased a Leica iCON robotic total station with Leica Geosystems' construction-tailored field iCON field software to do layout tasks automatically. Before this, the company did layout measurements conventionally using tapes, string lines and water levels. These procedures were time consuming and stretched the team's limits with the increasing complexity of designs.

"When we realized that we lose lots of time in the layout process, we started to look for modern alternatives that help us facilitate the whole layout process. One of the reasons why we choose the Leica iCON solution is the ease-of-use of both the instrument and the software. The intuitive software interface makes it simple to operate, even for employees with no professional layout background," states Mike Sharp.

Mike Sharp & Son purchased a Leica iCON robotic total station.

Since working with the iCON robotic total station, Mike Sharp & Son achieves much higher accuracy in its projects in a shorter time. The company has found it especially helpful to view the visualization of the whole design file in .dxf format. This means that employees can show every contractor working at the construction site the entire project and everyone knows what the status of the project is and where the different teams come into play. Mike Sharp explains, "Moving away from 2D design on paper plans to 3D design data directly and intuitively shown in the iCON field construction software ensures that the latest design files are available with no outdated or missing elements."

Another reason for Mike Sharp & Son to go with an iCON robotic total station from Leica Geosystems was the great consulting, support and outstanding training before, during and after the purchasing process that they received from SCCS Survey. SCCS Survey is a Leica Geosystems, part of Hexagon, authorized distributor and service partner in the UK.

The original version of this article was published by Leica Geosystems, a Hexagon company.