Every Second Counts



Measured building surveys are completed in approximately one-fourth the time using a Trimble X7 laser scanner, greatly enhancing productivity.

How measured building surveys are finished in a fraction of the time when using a laser scanner

Loading Trimble X7 point clouds into CAD software seamlessly produces detailed 2D drawings

Solution

Trimble® X7 3D Laser Scanner

Trimble Perspective

Trimble RealWorks

overview

Efficiency is key to controlling costs and meeting deadlines on measured building surveys. For Sky Revolutions, a Trimble X7 3D laser scanner provided significant time savings on several large projects without sacrificing data quality. Interiors and exteriors were scanned in a quarter of the time as compared to other methods, greatly improving the team's productivity.



Location
PETERBOROUGH, UK

Sky Revolutions, known for its specialty surveying skills and innovative use of drones, conducts surveys throughout the United Kingdom and mainland Europe. Having already purchased two Trimble S7 total stations from local distributor KOREC, the firm was familiar with Trimble products. In January 2021, Sky Revolutions decided to explore the benefits of the Trimble X7 3D laser scanner to expand its capabilities and streamline measured building surveys.

"The X7 has been exemplary in helping us deliver projects promptly," said Ben Gorham, company director at Sky Revolutions. "We've had other laser scanners before but the X7 is a step ahead."

Measured building surveys document existing and new construction on all building types and can include floor and roof plans, calculations of net and gross area or room size, internal and external elevations, and reflective ceiling plans and sections. The 2D and 3D deliverables support BIM modeling, refurbishment plans and ongoing maintenance programs.

APARTMENTS AND SPORTS PAVILIONS

Using the Trimble X7 3D laser scanner, Sky Revolutions scanned the interiors of 25 buildings ranging from a shed-sized sports pavilion to a library to create a digital database of the North London Council's properties. Since there were no existing as-built records of the aging buildings, the new 2D floor plans in CAD could be used to track maintenance and guide reconstruction in the event of a fire or natural disaster. The field crew finished in five days with the Trimble X7, compared to approximately four weeks had they used other methods.





The scanned point clouds provide as-built documentation, including roof and floor plans and building elevations. Photo credit: Sky Revolutions Ltd





(Left) The refurbishment of an apartment block to student housing was aided by accurate building elevations.

(Right) A detailed floor plan was created in CAD using the Trimble X7 point cloud.

In another complex project, Sky Revolutions created building elevations for a large apartment block being refurbished into student housing by a building consultancy. The exterior and interior were completely scanned in just four days as opposed to an estimated three weeks with traditional equipment. The point cloud was used to create 2D drawings and floor plans in CAD to aid with design and construction activities. In the future the point cloud could be used for BIM modeling.

"We always look for the latest tools and technologies that provide accurate, detailed data in short time frames," said Gorham. "The speed of the Trimble X7 scans made a big difference in our productivity. We can finish three or four surveys in the time it used to take to do one."



The Trimble X7 3D laser scanner streamlines measured building surveys.

MINIMIZE TIME ON-SITE

Time-saving features of the X7 include auto-calibration and self-leveling, which also lower the risk of human error while collecting measurements. For the apartment block and city building surveys, the speed of data collection helped reduce time spent on-site, saved the client money and lessened disruption to tenants and visitors.

For outside scans, the X7 has a range of up to 80 meters. For interiors, the unit is set up in the middle of a room and captures a full dome scan in just minutes. Fully integrated with the X7, Trimble Perspective field software controls and manages scans for maximum efficiency. Without setting up targets, the reliable auto-registration feature refines the project in the field to ensure accuracy and completeness of the scans.

Back in the office, the data is loaded into Trimble RealWorks for georeferencing and cleaning. The output is processed through Autodesk Recap for use in AutoCAD to produce the necessary 2D drawings and floor plans.

"The speed and efficiency of the X7 3D laser scanner is a huge advantage because it frees up our team to work on more projects," said Gorham. "Scanning has become a major part of our business."



Auto-calibration and self-leveling features improve efficiency and accuracy for interior and exterior scanning. Photo credit: Sky Revolutions Ltd

"In addition to the speed advantage when scanning a building site, the auto-calibration and self-leveling features give us confidence that we're delivering highly accurate information."

— Ben Gorham, Director, Sky Revolutions Ltd

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