



Trimble technologies optimize building renovation



Trimble TX8 colorized scan of building facade.

THE SITUATION

Le FabShop, a French digital workshop, was preparing to open the first Le FabClub, a makerspace, in Paris. The new operation would require the redevelopment of a commercial property that had been unused for years. At more than 700 square meters, the property presented numerous challenges, including outdated electrical, plumbing, and other infrastructure. It needed significant renovation to meet current building regulations for disabled access and other issues.

Highlights

- ▶ TX8 captured 35 highly precise scans in all
- ▶ 30 two-minute scans of the indoor space
- ▶ 5 three-minute scans of the exterior façade
- ▶ The scans of the property were completed in just 2 hours

overview

Modernizing an outdated commercial property requires precise 3D spatial data to make informed renovation decisions. Trimble 3D scanning and modeling technologies was chosen to facilitate the capture of quality as-built data and creation of reality based models to determine the best renovation plan.



THE CHALLENGE

Renovations such as this one usually start with a review of the structure's spatial information. But there were no up-to-date records for the property. The traditional method of manually measuring the building would have limited the plan for optimizing the space, and it would have been time consuming and unreliable.

THE SOLUTION

Trimble® 3D scanning, a better way to capture as-built conditions

Le FabShop and MARO Architectes, the firm hired to develop the renovation plan for Le FabClub, turned to Trimble 3D scanning and modeling technologies. They chose the Trimble TX8 3D laser scanner, because it offered the perfect combination of speed, range and precision to quickly capture precise 3D spatial data.

The Trimble TX8, in combination with Trimble RealWorks and SketchUp software, would enable them to quickly and efficiently create deliverables they could trust.

Uncompromising performance in range, accuracy and speed

The Trimble TX8 dramatically increased productivity by significantly cutting the time it took to capture the property. With its speed and accuracy—one million points per second and <2mm precision over the full measurement range—the Trimble TX8 completed the scan of the property in less than two hours.

MARO Architectes came away with just what they needed. The Trimble TX8 captured 35 highly precise scans in all: 30 two-minute scans of the indoor space and five three-minute scans of the exterior facade. Level 1, two-minute scans delivered high-resolution data for the short distances required indoors: 34 million points per scan, guaranteeing an accuracy of 2mm on all surfaces. Level 2, three-minute scans increased the resolution to effectively capture details



Aerial view of 17 first floor scans captured with the Trimble TX8



SketchUp model of building renovation.

of the façade from a greater distance: 138 million points per scan, with the same 2mm accuracy on all surfaces, even at greater distances.

It takes 3D projects to a whole new dimension

MARO Architectes and Le FabShop quickly discovered the many features and advantages of the Trimble TX8.

It's packed with features, making it extremely versatile, and it drastically reduces the time required to accurately complete a wide range of projects.

You can increase the Trimble TX8's resolution up to 6mm point spacing @ 30m, increase its range up to 340m, and boost its precision to <1mm. The intuitive interface makes it easy to switch scan options and makes learning how to use this 3D laser scanner remarkably easy. In fact, you can quickly become proficient with little or no training.

The Trimble TX8 uses a Class 1, eye-safe laser that can be used in busy public places. A scan pause ensures functionality in high traffic areas. And we added critical features for durability, including a rugged design, IP54 environmental rating, and a protected mirror that is unaffected by bright sunlight. As a result, the Trimble TX8 is the perfect scanning solution, even for the most-demanding environments.

Produce the high quality deliverables you need with Trimble RealWorks and Trimble SketchUp

The data collected by the Trimble TX8 provided a solid foundation for the Le FabClub project. Our software made the rest of the process easy.



Trimble TX8 scan of original entrance and SketchUp model of new elevator to the basement.

We used Trimble RealWorks software to automatically register the 35 Trimble TX8 scans. This gave us a precise and complete 3D point cloud of the building from which we could generate accurate models. The innovative RealWorks ortho-projection tool allowed us to generate accurate cross sections and elevations from the point cloud. Using the Trimble Scan Explorer extension, the entire scan project was available directly within Trimble SketchUp Pro. With both the full project available and the exported projections in Trimble SketchUp Pro, MARO Architectes could begin modeling the building and renovation proposal.

The highly accurate Trimble TX8 data ensured the SketchUp models were based on reality and reflected the true as-built conditions of the building. Once the models were finished, we used the scan data to check the quality and accuracy of the models. We imported the SketchUp models into



Realworks so the 3D Inspection tool could compare the model with the Trimble TX8 scan data to make certain they were correct and within tolerance.

RESULTS

Trimble 3D technologies efficiently optimized the building renovation

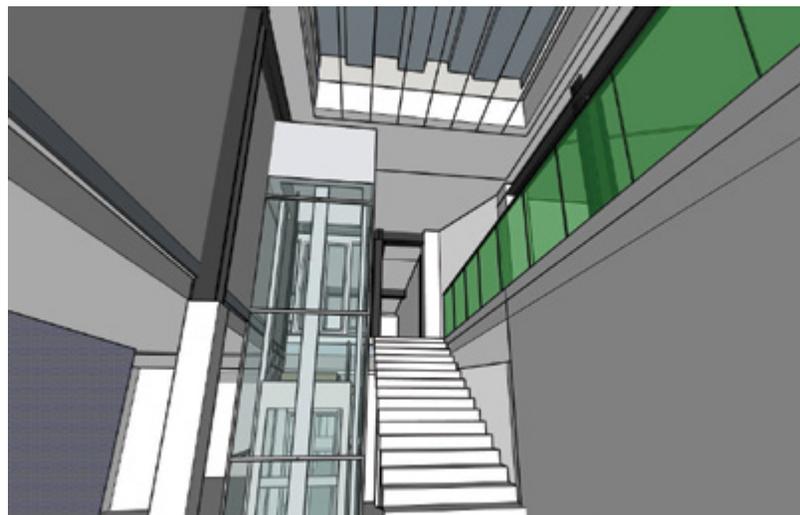
The end result was a renovation design both parties could trust. The Trimble TX8 quickly captured highly accurate data of the as-built conditions for same day processing in Trimble RealWorks software. MARO Architectes was able to immediately focus on space optimization and compliance with building regulations.

The scan data enabled the creation of precise SketchUp models based on reality and revealed the best possible renovation design. The Trimble RealWorks 3D Inspection tool helped validate the models for final architectural plans and construction. Le FabShop and MARO Architectes had a compelling renovation plan they could implement with confidence.

The end result was a renovation design both parties could trust, one they could implement with confidence.



Trimble TX8 3D laser scanner



SketchUp model of new stairs and elevator from first floor to basement.

“Accurate as-built data made the overall renovation plan a success.”

*Bertier Luyt
Founder & CEO le FabShop
Paris, France*



Contact your local Trimble Authorized Distribution Partner for more information

NORTH AMERICA
Trimble Navigation Limited
10368 Westmoor Drive
Westminster CO 80021
USA

EUROPE
Trimble Germany GmbH
Am Prime Parc 11
65479 Raunheim
GERMANY

ASIA-PACIFIC
Trimble Navigation
Singapore Pty Limited
80 Marine Parade Road
#22-06, Parkway Parade
Singapore 449269
SINGAPORE

© 2016, Trimble Navigation Limited. All rights reserved. Trimble, the Globe & Triangle logo, RealWorks and SketchUp are trademarks of Trimble Navigation Limited, registered in the United States and in other countries. All other trademarks are the property of their respective owners. PN 022516-224 (01/16)