



TruePoint®

3D LASER SCANNING SERVICES

3D LASER SCANNING FOR **CONCRETE CONSTRUCTION**

Whether you are performing concrete inspection, layout or documentation, we deliver solutions to expedite your project.

3D laser scanning helps concrete contractors and engineers better manage construction projects with precise data to aid decision making.



What is 3D Laser Scanning?

3D laser scanning is a powerful solution for documenting existing conditions. Laser scanners use LiDAR technology to collect millions of precise structural and MEP data points. Scans are taken in multiple positions from varying viewpoints and processed into a point cloud. This point cloud is used in virtual construction and BIM environments. CAD technicians use the point cloud to develop 3D models and 2D drawings to expedite analysis, planning and prefabrication.

What are the Benefits of Laser Scanning?

- Fast, accurate data collection in the field
 - Eliminates site revisits and disruption
 - Quickly measures large, unsafe or hard-to-reach areas
 - Expedites design planning and prefabrication
 - Improves communication and coordination
 - Reduces change orders and costs
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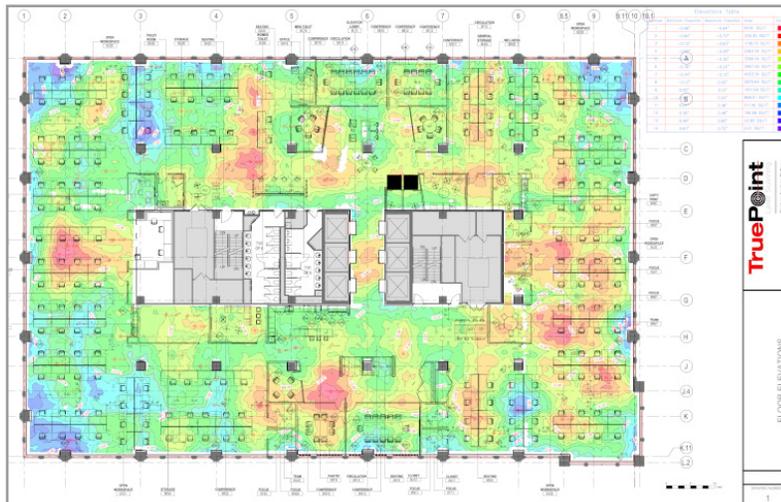
Floor Flatness and Floor Levelness

3D laser scanning is the best way to measure floor flatness and floor levelness with precision, efficiency and accuracy. Highly-detailed point cloud data is used to determine FF and FL values on concrete floor/flatwork. Color elevation maps can be quickly produced to identify the high and low points in concrete and calculate the boundaries of any areas that need to be adjusted. Contractors can fix elevation discrepancies with speed and assurance.

CASE STUDY

Slab Deviation of Office Space

The concrete floors of a newly constructed corporate office were 3D laser scanned before the interior walls were built out to verify floor levelness. The point clouds were aligned to existing floor plans to generate a 2D color map showing deviation analysis. With this information, the general contractor could make necessary adjustments to level the floors. This project was phased over 3 mobilizations to accommodate the construction schedule as floors were made available.



Using this 2D color map deviation analysis, the general contractor was quickly able to analyze floor flatness.

Construction Verification

Locate potential risks sooner with 3D laser scanning to capture real-time as-built verification directly at the jobsite. Laser scanning can be used to compare scans against the as-built drawings or model; detect incorrect placements and fix errors quickly; and monitor shifts or changes in the building over time. Contractors and engineers can ensure their design plans are accurate and eliminate clashes before they turn into change orders.

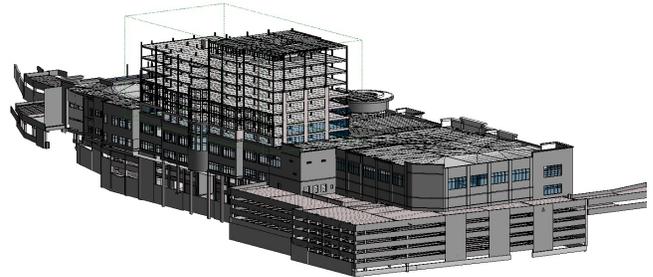
CASE STUDY

Existing Conditions Analysis

Over 1.54 million square feet of office, retail and parking garage space was 3D laser scanned to create an accurate Revit model of existing site conditions. The field-verified dimensions gave this client data to plan design changes with confidence. Some of the benefits of 3D laser scanning analysis included: detention pond volume; stair, elevator and escalator shaft alignments; structural steel tolerances; exterior framing, cladding, mechanical coordination and curtain wall systems. Contractors installed design changes at a very high rate of efficiency, reducing field alterations, saving both time and money. The cost avoidance impact of an integrated scan-to-BIM workflow saved this project an estimated 5% of the total contract amount.



3D laser scanning measured 1.54 million square feet of retail, office and parking garage space with millimeter accuracy.



From the Revit model, AutoCAD .dwg's and 2D PDFs were produced, replacing original proposed documents with field verified dimensions.

Verifying MEP Concrete Work

3D laser scanning provides the ultimate solution for verifying MEP concrete work right in the field. Ensure all conduit, rebar and embedded sleeves are in their proper place. Visualize and immediately identify problem areas, then use the documentation to communicate back to the field crew and office. Easily perform data capture for all surface types such as pre and post pour of concrete slabs, structures and MEP installations, in a fraction of what it would take traditionally. Data collected will be an asset for years to come, as it can be referenced for any future coring or drilling needs, showing where everything was embedded in the slab prior to pouring.

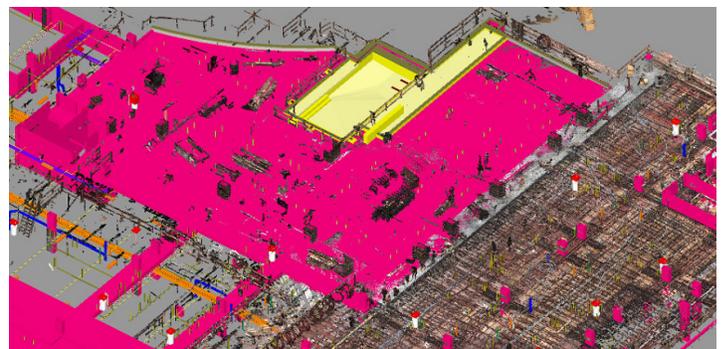
CASE STUDY

Scanning Slabs Pre-Pour

An eight-story apartment complex had five to six concrete pours scheduled on specific dates over an 8-month period. 3D laser scanning was performed in each area to capture the existing conduit, post-tensioning, rebar plan and sleeves prior to the slab being poured. The existing conditions could be checked for irregularities and adjustments could be made before the pour. The scanning paid for itself on the first mobilization when it was determined that the plumber had mismeasured when placing the sleeves. Fortunately, this issue was discovered and corrected before the pour, saving the client thousands of dollars in rework and schedule delays.



TruePoint 3D laser scanned an eight-story apartment complex over an 8-month period to capture the existing site conditions prior to the slab being poured.



The general contractor received colored point cloud data aligned to the drawings to assess the site for misplaced sleeves, conduits and post-tension runs.

Prefabrication of Stairs and Railing Systems

3D laser scanning can document existing structural elements, staircases, walkways and railing systems for prefabrication and modification. All necessary measurements are captured and transformed into 3D solid or mesh models or 2D CAD drawings for better project planning, ensuring accuracy with little to no rework. Data ensures elements are prefabricated to the right specifications and expedites installation.

CASE STUDY

Railing Prefabrication at the Denver Zoo

3D laser scanning was used to capture an existing walkway to prefabricate an irregular steel railing offsite. A 3D mesh model ensured elements were prefabricated to the right specifications. Given the tight deadline and complexity of the work, laser scanning quickly modeled the contours of the concrete.



Precise as-built data ensured the railing system would fit properly when delivered and installed.

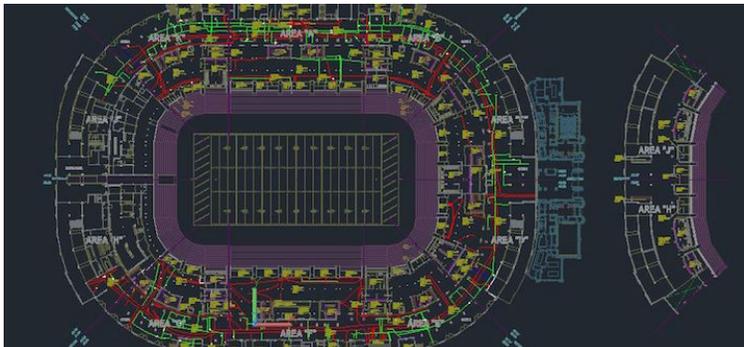
3D Laser Scanning GPR

3D laser scanning can capture ground penetrating radar (GPR) markings to accurately document underground utilities, rebar and post tension cables located under concrete. 3D models and 2D site plans can be created to eliminate potential problems during construction and improve safety before cutting or drilling into the concrete.

CASE STUDY

Stadium GPR Documentation

160,000 square feet of GPR markings documenting active conduit, water and sanitary sewer lines were 3D laser scanned at a college football stadium. Point cloud data was used to create a 2D utility site plan. It was important to accurately document these utilities to eliminate potential problems during stadium renovations.



This site plan documented 160,000 square feet of space showing active conduit, water and sanitary sewer lines inside the stadium concourse.

Why Choose TruePoint?

If you are a concrete contractor, or a general contractor working with subcontractors, you know there are a number of project aspects that can be particularly challenging to get right. Collecting precise project data before, during and even after a project and sharing that data with the field and the office fosters better communication and coordination, ultimately saving you time, money and frustration.

3D scanning provides accurate data to save your company time, money and frustration.



TruePoint®

3D LASER SCANNING SERVICES

TruePoint Laser Scanning is a nationally recognized leader in 3D laser scanning. Our team is dedicated to serving clients, delivering the highest quality point cloud data, 3D models and 2D drawings on time and on budget.

How Can We Help You?

Call: 419-843-7226

Email: info@truepointscanning.com

Visit: www.truepointscanning.com