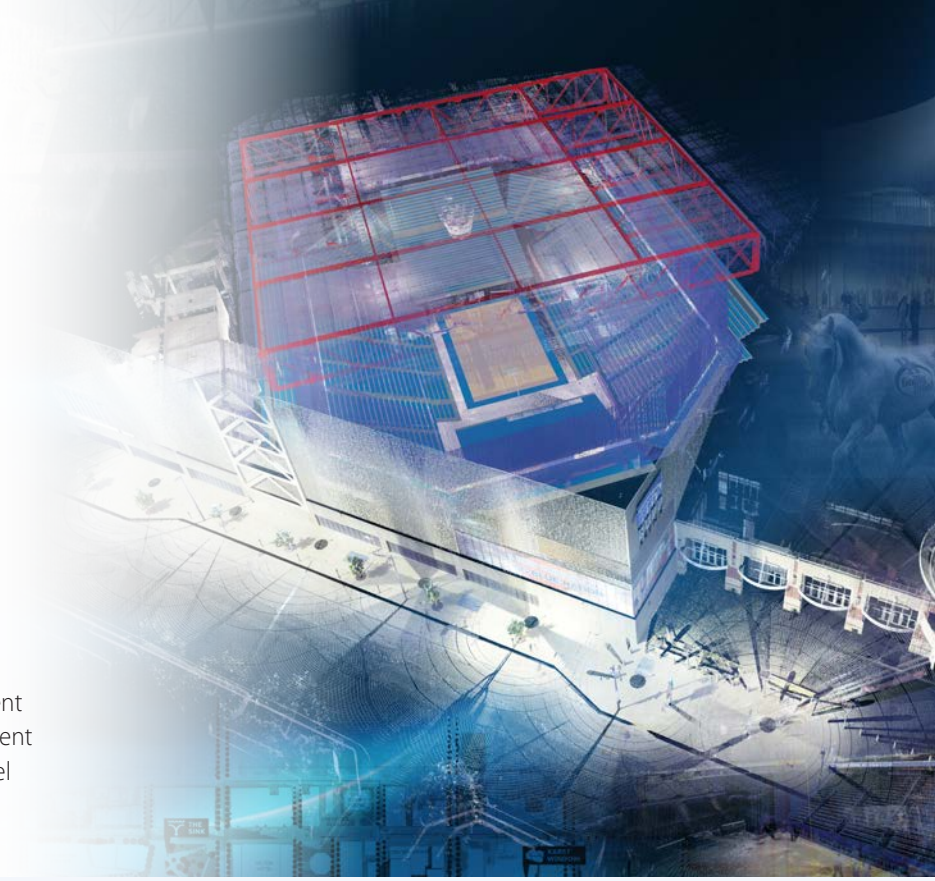
LASER **SCANNING**

Mortenson construction

Building what's next.

Whether you are embarking on a new facility, addition, or historic renovation, laser scanning can provide detailed information quickly that can be critical to the success of your project.

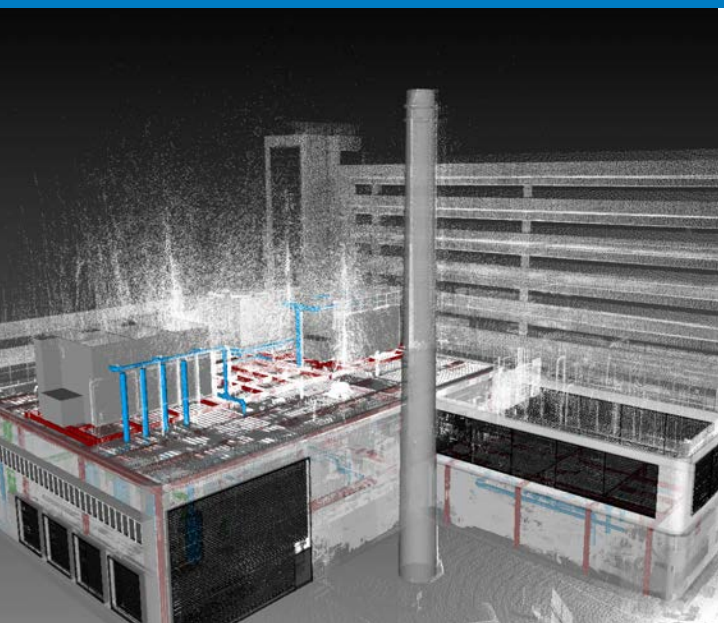


3D laser scanning measures intricate surface details and reproduces the exact size and shape (and even the color) of a room or building into a 3D image. The laser scan creates a "point cloud" of data—millions of points measured by the rotating laser over each surface of the space. Mortenson can then take the point cloud and transform it into a Building Information Model (BIM). Once the data has been translated into a BIM it can be used to create design drawings, document as-built conditions, or be referenced by a facilities management team. Mortenson is able to manipulate and tweak that model to fit client needs and brainstorm design improvements.

> "The accuracy of their model was very good and the installation went well and without issue. Being able to take sections and drawings into the field that represent actual conditions greatly improves the efficiency and accuracy of the field take off effort. Mortenson's efforts as part of the design and construction team saved our project time, hassle, and money. The end result was a successful project with a highly accurate 3D as-built model."

Richard A. Vedvik
Acoustical Engineer
(on the OSF St. Francis Medical Center EC2 Project)
KJWW Engineering Consultants

CASE STUDY: OSF St. Francis Medical Center EC2 Project - Peoria, IL



Situation:

Customer needed an accurate Revit MEP as-built model of their 60,000 SF energy plant for the design team. The deliverable would also be used for facility upgrades, adaptive re-uses, and avoiding field re-work.

Mortenson's Laser Scanning Value Add:

As an in-house service, Mortenson scanned the entire facility (inside & out) to create a 3D model complete with architectural, structural, and MEP systems.

This allowed the architect/engineer to deliver a **better design** and **reduce exploratory time and field visits** while **minimizing field clashes and disruption.**

Laser scanning brings exponential value to your project, whatever the scope.

Here's How it Works:

1 Identify Need & Desired Outcome

Laser scanning is as much about gathering accurate information as it is about brilliant visualizations. Technology has given us the ability to precisely re-create any environment and seamlessly transform millions of pieces information into a useful building models. There are many practical uses for laser scanning, and many amazing deliverables it can produce. The efficiency of reality capture is making Mortenson a smarter builder, allowing us to make quicker and better informed decisions which leads to better overall customer experience.

Northwestern Mutual Van Buren Office Building - Milwaukee, WI

2 Data Acquisition

First, the area is scanned – usually from different scan positions in order to completely cover its surface. Each view point generates a cloud of points. This point cloud data set provides remote access to valuable information for architects, engineers, and construction teams when planning, designing, and analyzing projects.

Laser scanning eliminates the labor intensive hand gathering measurements in the field. It is our preferred method for gathering information that is used for visual and measurable verification of existing conditions. This information is exportable to Revit, Navisworks and other design software.

University of Arizona McKale Center - Tucson, AZ

3 Point Cloud Data Tied Geographical References

After data acquisition, each scan is geo-referenced. Geo-referencing is the transformation of the scanner data into a real world coordinate system. This geo-referenced point cloud is tied to building control, and allows the point cloud to be accurately positioned relative to other elements of the design.

The point cloud data is referenced to the coordinate system using surveying technology.

4 Data Utilization

Once the geo-referenced point cloud is created, the next level of development is to use the data for whatever your project requires – whether it be used for creating a 3D model, assessing floor flatness and levelness, inspecting walls, performing energy analyses, etc.

These options will consist of elements captured in the point cloud that add value to the project. This information is used by owners, architects and engineers to coordinate the project.

5 Integrate into Customer / Designer / Construction Workflow

WebShare is ideal for sharing large data sets with the project team, utilizing a web-based application and cloud-based data storage. This design tool gives architects, engineers, and construction teams access to measurable point cloud data through a secured Internet connection. WebShare gives project teams 24/7 access to project sites. Design partners and stakeholders can view, walk through, and take measurements safely without ever stepping foot on the project site. The also reduces travel costs and time consuming site visits.

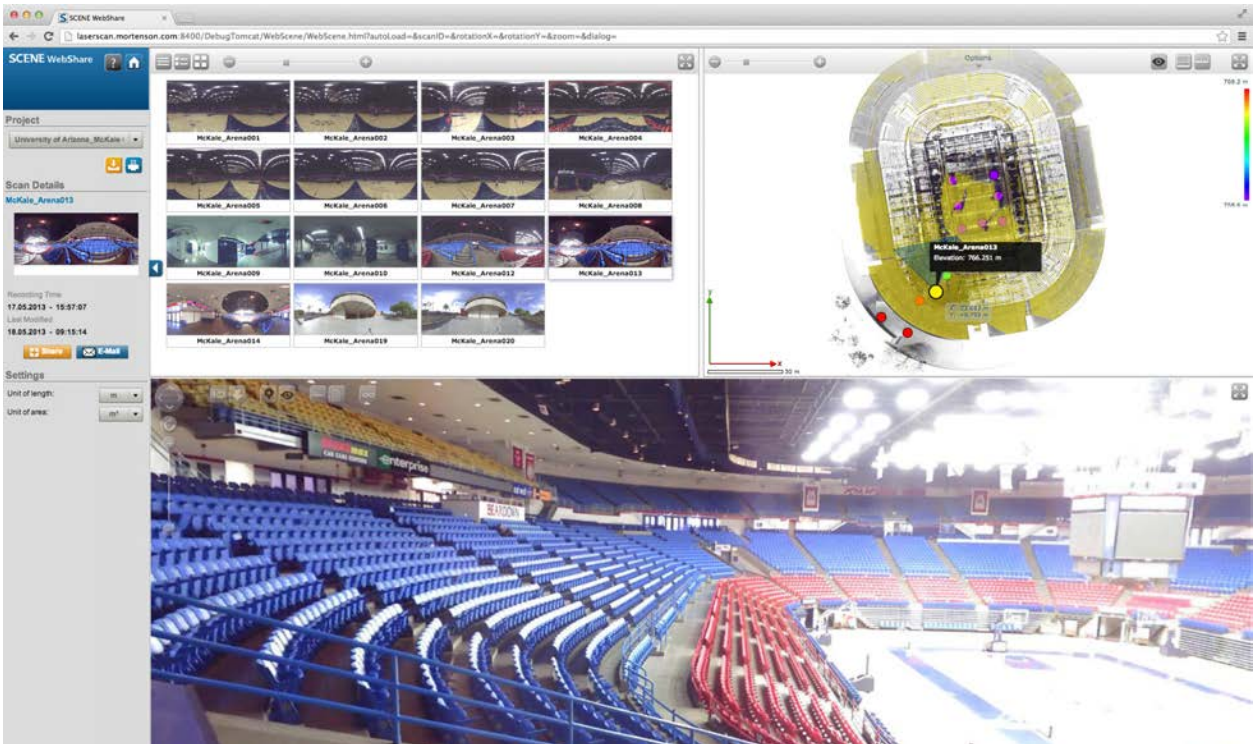
6 Measured Outcome

Whether the result is an incredibly accurate 3D model, down to the millimeter – or a thorough assessment of floor flatness and levelness, wall inspections, or energy analyses – laser scanning ensures quality, increases speed of capture, and ultimately eliminates surprises for the customer.

Web Share Design Tool

Web Share is ideal for sharing large data sets with the design team, utilizing a web-based application and cloud based data storage. This design tool gives architects, engineers, and construction teams access to measurable point cloud data through a secured internet connection.

In seconds you can get accurate measurements, compare design dimensions, or check site conditions.
Visit laserscan.mortenson.com to check out some of our recent work and see how easy it is to use!



Contact us to find out more about how we can help you with your upcoming project.

Mortenson construction

South + West Regions:
Steve Baret
Integrated Construction Coordinator
480.339.7886
Steve.Baret@mortenson.com

North + East Regions:
Joel Jacobson
Integrated Construction Coordinator
847.472.8231
Joel.Jacobson@mortenson.com

We go where you need us.

Mortenson has scanned over 50 projects in 12 states across the US.