TECH NOTE

PMC Technology Update

I scanned my building, now what?

As terrestrial scanning becomes more common within the AEC industry a new challenge has emerged. What do we do with all the scan data?

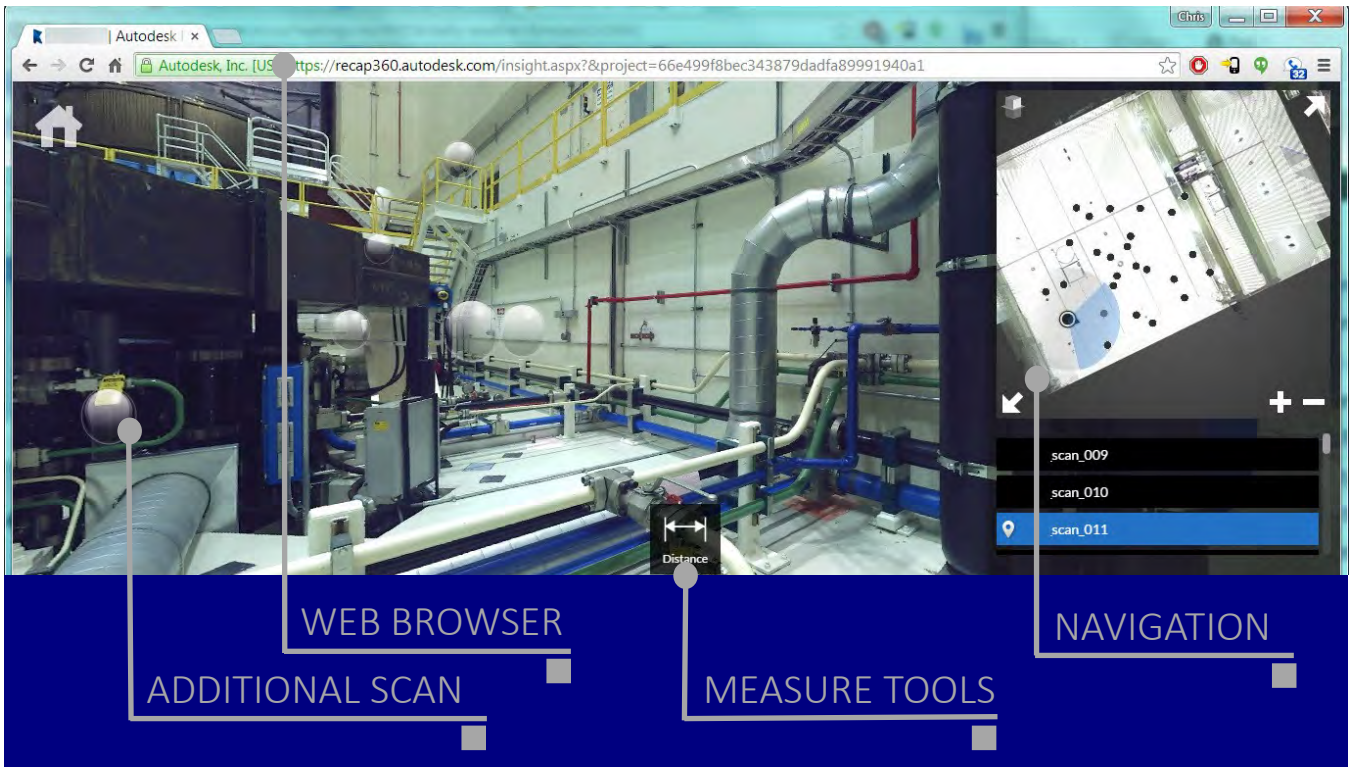
Whether you are just starting out with scanning or have been doing it for years the fast pace of change means there are new ideas every day.

Many options

Once you've completed the field scanning there are a number of ways the scan data can add value to your project. From the most basic, as a visualization tool, to the very complex, achievement of design certainty and elimination of field orders.

Visualization

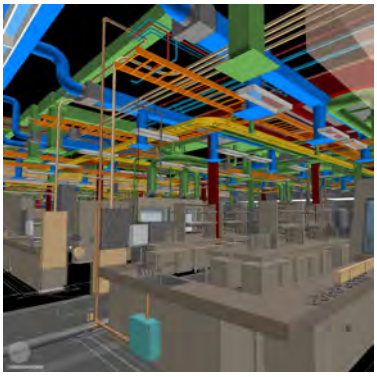
The simplest way to use scan data is as a visualization tool. The scans can be posted online and reviewed as a 3D images all within a web browser with no special add-ons You can even take simple dimensions. This is a great first step into having scanning provide positive results for your project with very little training.



Exterior Building Scan

Modeling Options

Although typically converted to 3D it is possible to convert scan data into 2D as well. The best decision will be governed on what is right for your project.



2D Layouts from Scan Data
On some projects it can make sense to simply convert the laser scan data to 2D layouts, sections, and elevations. This is especially helpful when you have a tight timeline or a team which is not yet comfortable with 3D workflows.

3D Model Development
It is now possible to develop 3D models to any LOD in almost any format. Although some automated tools exist most model geometry is still created using tracing techniques. Cost effective options of generating 3D models typically involve having portions of the model completed by overseas partners.

Beyond Modeling

As teams become more sophisticated laser scan users they'll start to find new and creative uses for the scan data that don't always involve modeling. Scan data can be edited to remove objects that will be demolished right within the cloud itself. The scans can also be plotted directly on sheets for use by installers and fabricators.

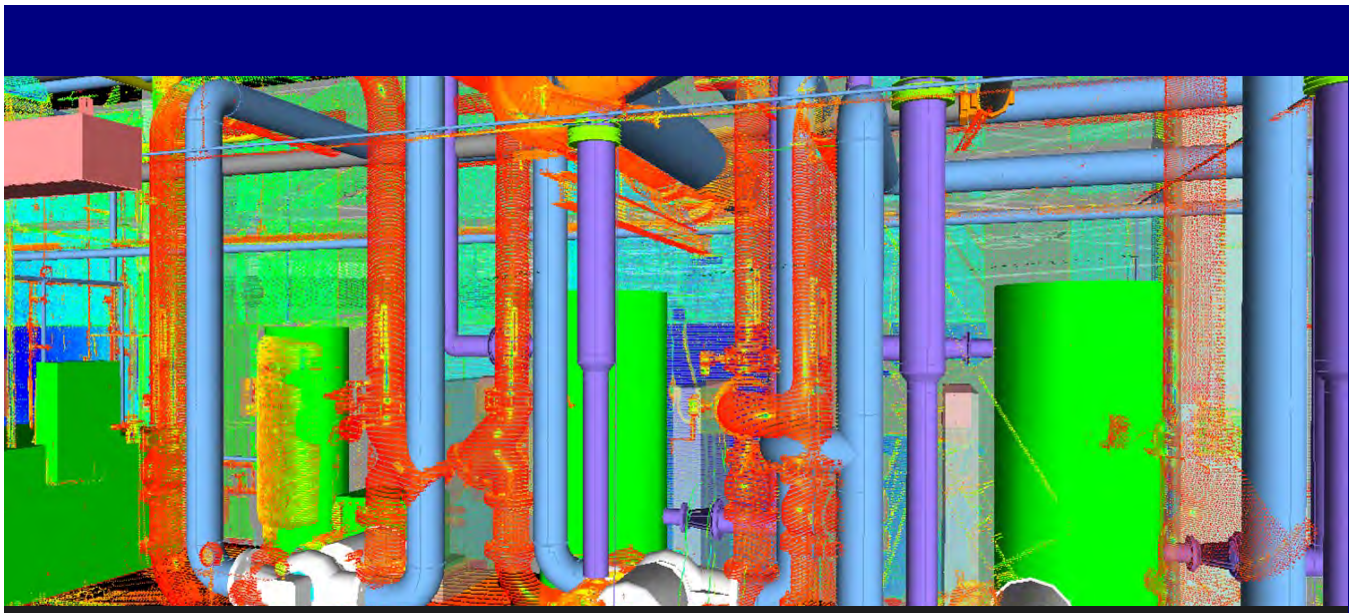
LOD?

If you decided to convert your scan data to model data one of the most important decisions you'll make is what LOD should your model be developed to. Within the AEC industry today even LOD has multiple definitions. It can either stand for Level of Detail or Level of Development. These are two distinct things.

Level of Detail is purely a CAD modeling visualization decision. Will generic objects be used within the model or will the exact item be modeled?

Level of Development, sometimes called Level of Design, refers to the model's development as it pertains to its use in construction of the building. This has little to do with the visual representation of the objects in the model and has more to do with the data behind the objects. For example if a model is in an LOD500 state it will contain warranty information for each item.

Data Capture with a Faro Focus3D



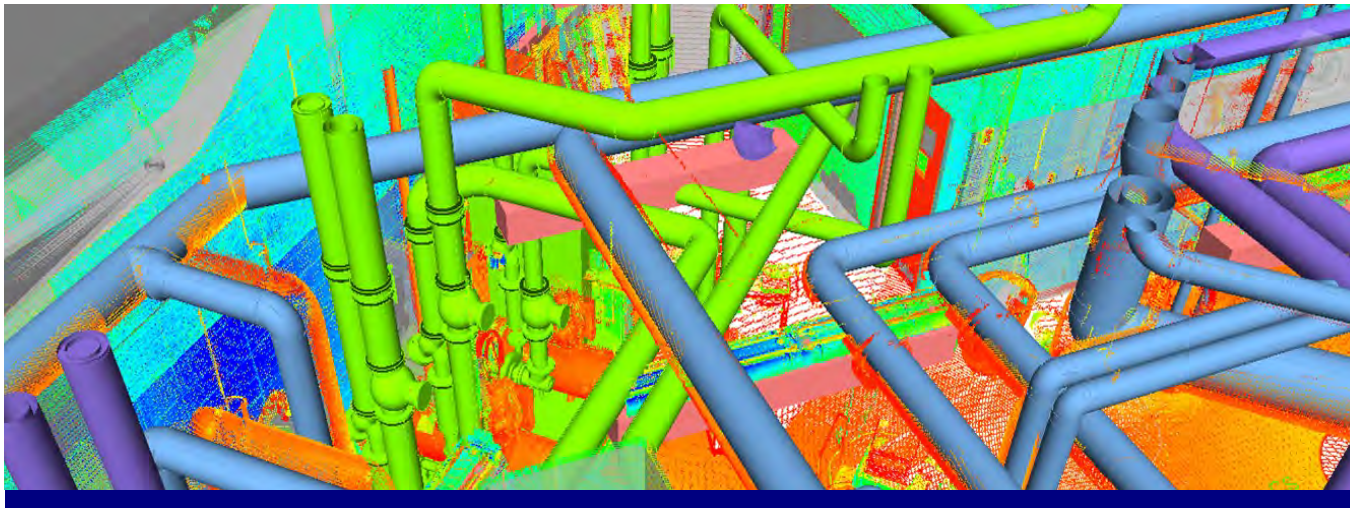
“As-Built” Model vs. Reality

More than a planning tool

One common use within the AEC industry is to ensure that what was promised is what was delivered. This can be used a various stages of construction to accomplish different goals. It is often used a quality check to ensure that installers are meeting there obligations to ‘build to the model’. Another great use is to capture conditions before they are enclosed. Have a 3D scan of piping before it is encased in concrete can be a great asset for a building owner to posses.

In practice

The image above shows the results of scanning a utility room in which the installer of the MEP equipment had contractually agreed to install to the model. The purple piping shows what was planed within the CAD design environment while the orange shows the as-built scan data. Although painful at first this process is a benefit for all involved. See the power of scanning technology gave the contractor the confidence to begin off site fabrication of the remainder of the project making more profitable for not only them but there client as well.



About PMC

PMC is the largest independent industrial engineering & simulation services firm in North America. For over 30 years PMC has been leveraging the latest in advanced technology to improve our Client's processes.

Established in 1979 PMC, has grown to have office around the world. With over 700 clients, 6000 completed projects, and over 150 employees PMC can work with you to find the right data-driven productivity solutions for your needs.

About the author

Our Laser Scanning/CAD Team is managed by Chris Mounts, a scanning veteran who has scanned over 100 million square feet of buildings and facilities. Chris continues to be a technology leader within the industry writing multiple regional and national CAD and BIM standards. He has presented at multiple industry conferences, and has been twice recognized by the American Institute of Architects (AIA) receiving the Technology in Architectural Practice (TAP) award in two consecutive years.

Contact Us

Give us a call for more information about our services and products

PMC
15726 Michigan Ave
Dearborn, MI 48126

(313) 441-4460

MoreInfo@pmcorp.com

Visit us on the web at
www.pmcorp.com