



EdgeWise MEP Delivers Major Hospital Project On-Time and On-Budget

A \$125 million hospital renovation in Zanesville, Ohio, required a 3D building information model (BIM) of the exterior and interior structure, including seven mechanical rooms that were packed with pipes. Tasked with creating the as-builts on a tight deadline, PrecisionPoint, Inc. saw the maze of conduits, pipes and wires in those rooms as potential schedule-breakers. To complete the project on time, the firm scanned them with terrestrial lasers and then applied EdgeWise MEP to extract and model the mechanical, electrical and plumbing (MEP) features needed to generate the BIM so design work could begin on time.

The architecture firm hired to design the expansion contracted PrecisionPoint, a provider of 3D laser scanning solutions in Carmel, Indiana, to create highly accurate BIMs for the entire facility. The 5,000-square-foot mechanical rooms presented the most formidable challenge to the six-week schedule

due to their size, complexity and importance. Those seven rooms required more detailed modeling because they were packed with critical MEP equipment.

“In the past 50 years, there have been so many changes to those rooms that the original design drawings are useless to us,” said Mark Hanna, Founder and President of PrecisionPoint. In a large building or plant renovation like this one, individual MEP features must be modeled accurately in three dimensions so new pipes and conduits can be designed for clean installation in the void space. This requires that pipe runs be located precisely in space, with their size, sag and elbow angles carefully measured and recorded in tables. “We had to reduce the time it would take to create BIMs for them, so we decided to use the

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- Mark Hanna, President, PrecisionPoint, Inc.

EdgeWise automated extraction software for the first time on this project,” said Hanna.

PrecisionPoint Workflow



FARO Focus 3D



FARO Scene



EdgeWise MEP

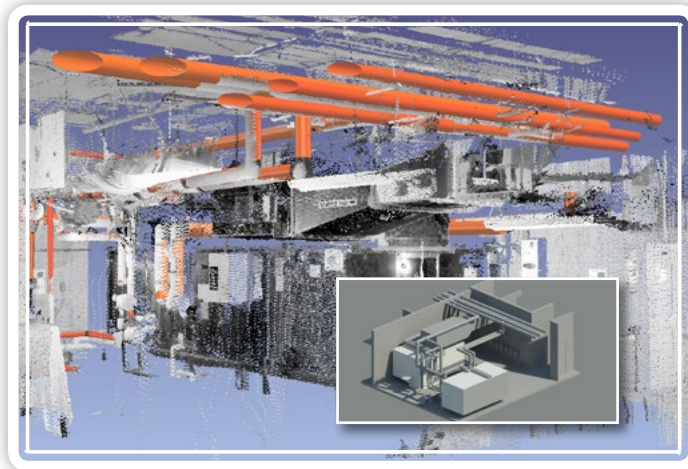


Autodesk Revit

Pipe Model Exported Directly to Revit as Pipe Family Objects

The firm used two FARO Focus3D laser scanners to scan the interiors. As expected, however, multiple scans were required for the complex mechanical rooms. Over a period of three days, they took at least 15 scans in each of the rooms. With the field work complete, the PrecisionPoint technicians used FARO Scene software to register the point cloud scans. From the Scene software, the scan files were exported to the EdgeWise MEP software.

In the old workflow, once the extraction was completed, the technician exported the point clouds and pipe models with their associated tables directly to AutoCAD for additional clean-up. From there, the data was imported into Autodesk Revit software for final BIM modeling. Using the native Revit MEP pipe modeling tool, PrecisionPoint would have had to re-build each individual pipe run in its precise size and configuration, creating a solid 3D BIM of the mechanical room. The EdgeWise to Revit workflow eliminates this time-consuming step by exporting a model to Revit as fully functional Revit pipe family objects—no more costly re-modeling in Revit!



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After setting a few parameters in EdgeWise and kicking off the extraction process, the PrecisionPoint team was able to focus on other aspects of the project while EdgeWise worked in the background to automatically extract the pipes. After several hours of processing, EdgeWise MEP extracted nearly 90 percent of the pipes in the scene, recording their length, outside diameter, sag, and bends in an attribute table.

EdgeWise MEP Shaved Weeks Off the Old Workflow

An enormous time-saver was the software's ability to estimate the bend radius of a pipe elbow, a common source of error in manual extraction. In addition, the software has sophisticated algorithms that enable it to extract a continuous

pipe even if the point cloud data is occluded or shadowed from view.

Without EdgeWise MEP, the PrecisionPoint technicians would have had to delineate, measure and trace each pipe run manually in Revit or in another CAD package. This would have added weeks to the modeling phase of the project. "We never could have gotten this project completed on time without using the EdgeWise MEP for the mechanical rooms," said Hanna.

To learn more or request a software demonstration, visit clearedge3d.com or contact us at sales@clearedge3d.com or +1 866.944.8210.