# FARO® As-Built™ for Autodesk® Revit®
Creating Efficiencies in Scan Data Extraction for BIM

FARO As-Built for Autodesk Revit provides quick and intuitive workflows for processing 3D laser scan data directly into Autodesk Revit using Revit objects and BIM models. It is the perfect complement for Revit users working with large point clouds and integrates seamlessly with the familiar Revit user interface. It features a wide range of evaluation tools for 3D laser scan data with customized commands for modeling and detailing BIM elements.
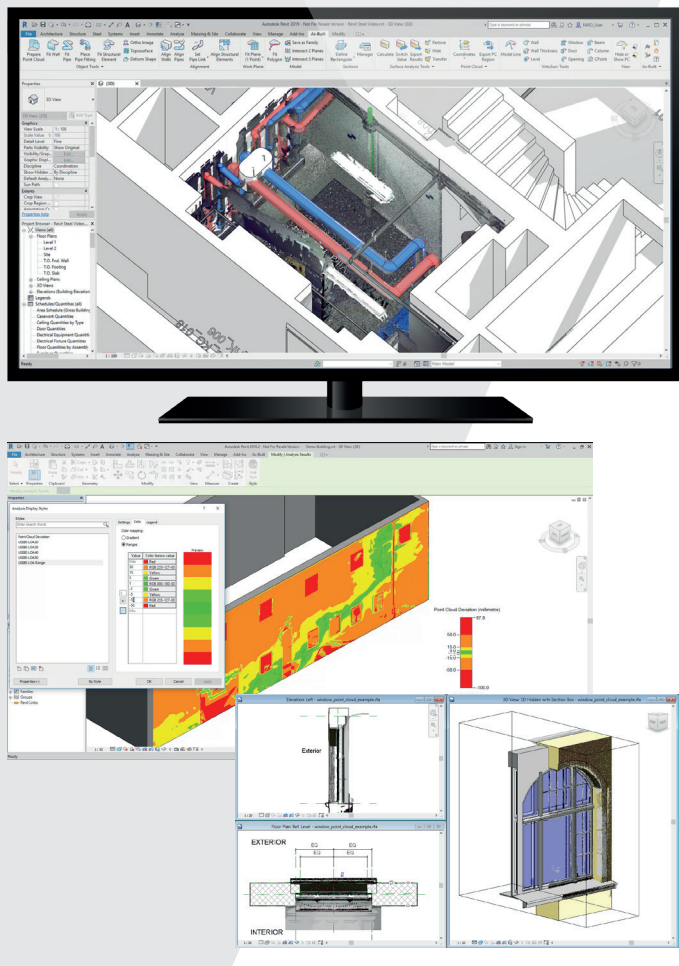
Retain the Overview, Guaranteed
A Section Manager enables users to crop point clouds inside Autodesk Revit, independent from using the current view and provides a more accurate orientation in part to hierarchical organized point cloud sections. This increases the precision of processing and allows users to easily manage and navigate the scanner data.

Create 3D Models Directly in Revit Point Clouds
FARO As-Built features a wide range of 3D construction aids. Users can create 3D model lines and construction points using real 3D point snap within the point cloud, independently of Revit work planes. Users fit work planes directly in the point clouds and create accurate reference lines and points by an intersection of model planes.

Save Time and Money with Automated Tools
Walls, pipes and structural elements like beams and columns can be created quickly and precisely. The wall types for different wall thicknesses are defined automatically. The wall alignment tool allows users to globally align, correct and fix extracted walls segments throughout an entire model. Additional functions include the automatic creation of deformed floor slabs based on floor irregularity as well as the creation of a ground surface (topo- surface).

Compare the Model with Reality
Surface analysis enables the comparison between the point cloud and the Revit model. The results can be exported as profile lines or to databases.

Evaluate Laser Scanner Data in the Family Editor
FARO As-Built enables 3D laser scanner data to be used directly in the Revit Family Editor. Creating object specific families is simple using point cloud regions, planar scan views and true ortho-photos.

Benefits

- Continue using familiar Revit design tools easily when evaluating 3D as-built to BIM models

- Create deliverables that are 100% compatible with clients' systems and constraints

- Use additional functionality for modeling 3D laser scan data

- Evaluate buildings, pipes and steel constructions with a wide range of industry specific functions

- Customizing commands for modelling and detailing BIM elements according to specified workflows

- Report model checkup for a given tolerance by industry standards or stakeholder specifications

- Work within the FARO ecosystem which provides users with convenient tooling for a seamless workflow - hardware capturing as-builts to software creating CAD and BIM deliverables

Key features

General functions
- Create walls quickly and precisely in the point cloud
- Create new wall types for different wall thicknesses automatically
- Align walls for producing rectangular floor plans to user-defined tolerances automatically
- Intersect wall ends automatically
- Create a ground surface (topo-surface) from point cloud coordinates
- Use surface analysis to compare between point clouds and models
- Display different levels of accuracy (LOAs) defined by the USIBD (http://usibd.org/)
- Create a ground surface or complex components from the results of the surface analysis
- Create new family types for doors and windows from the point cloud

Piping
- Fit fast and precisely Revit pipes directly in the point cloud
- Adjust Revit pipe types automatically to the diameters measured in the point cloud
- Fit pipes optionally with isolation
- Insertion of pipe fitting objects (elbows, Tees, transition, crosses) between fitted pipes with adjustable parameters
- Fully support of standard or custom Revit MEP families and templates
- Align pipes and pipe fittings automatically to obtain a correctly connected network of pipe runs

Structural elements
- Fit structural elements fast and precisely, such as beams and columns from Revit families
- Insertion of the suitable types by powerful profile detection command

3D construction aids
- Use the Point Cloud Section Manager, e. g. to crop point clouds independent from Revit views
- Retain overview with hierarchical organized point cloud sections
- Create 3D model lines and construction points using real 3D point snap in the point cloud, independently of the Revit work plane
- Fit polygonal chains in the point cloud
- Create restricted, fitted work planes in the point cloud (by selecting just a single point or by selecting many points)
- Create intersection lines and intersection points between any model planes
- Create and fit planes with only one click
- Determine plane boundaries automatically

Ortho images
- Create ortho-images with optimized displays from point clouds directly in the Revit project
- Optional: Color images with automatically adjusted point density or in ClearView mode

Photo like scan view
- Display scan data in a photo like planar scan view in SCENE (ScanToRevit) and send coordinates into the Revit project
- Custom commands to create BIM elements directly in the scan view: walls, doors, windows, pillars, beams, columns etc.

Support of Revit Family Editor
- Insert point cloud regions directly in the families editor
- Use scaled ortho images as construction aids
- Use the planar scan view to create construction aids directly in the families editor
- Save model lines as a 2D or 3D Revit family

Work with linked documents
- Retrieve "Shared coordinates" directly from the point cloud

Worksharing
- Compatible with Revit Worksharing projects

Industries

Architecture | Civil/Survey | Construction | Facility Management | Historical Preservation | Mechanical, Electrical and Plumbing (MEP)

Technical Requirements	
Platform	Autodesk Revit 2015 and above. Users of elder Revit please contact FARO.
Operating system	Dependent on the version of Autodesk Revit, 64-bit systems only .
Recommended hardware requirements	Computer: Graphics card as recommended by Autodesk, RAM at least 8 GB, better 32GB and more, processor at least 2.5 GHz, better 3-4 GHz and 4-8 cores, SSD for larger projects; Laser scanner type to suit job in hand.

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