

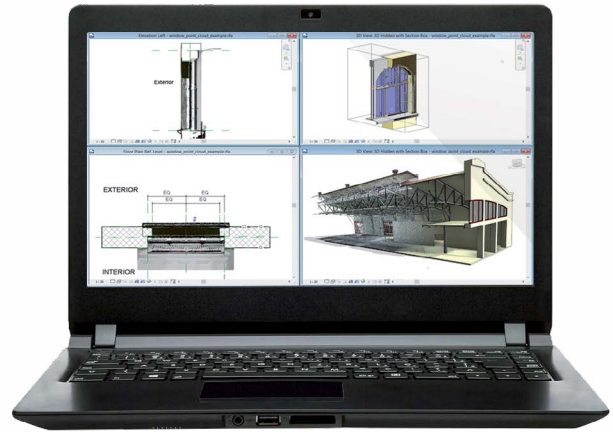
# PointSense Plug-in for AutoDesk® Revit®

# FARO®

Efficient processing of 3D laser scanner data in Revit

PointSense Plug-in for Revit® is a perfect complement for users working with point cloud data in Autodesk® Revit®. This add-on offers processing functionality of scan data with customized commands for modeling and detailing BIM elements:

- ▶ Ground surfaces
- ▶ Walls/doors/windows
- ▶ Pipe runs
- ▶ Columns/beams/pillars
- ▶ Roofs, stairs and many more Modeling in 3D



Revit® 3D model from 3D scanner data Point Cloud in the Family Editor

## PointSense for Revit® Solution

- Fit and align walls automatically with intuitive tooling
- Create models directly in the point cloud using 3D construction aids and real 3D point snap
- Fit Revit® work planes in the point cloud
- Calculate measurements from ortho-images directly in the Revit® project
- Process scan data in the Revit® Family Editor
- Work with simple and intuitive navigation menus in the photo like scan view
- Model pipe runs and structural elements from scan data e. g. for use in mechanical, electronic, plumbing (MEP) applications.

PointSense permits a quick and intuitive workflow for processing large point clouds in Revit® and creates inventory architecture that can be used in BIM.

### Create 3D models directly in Revit® Point Clouds

PointSense for Revit® features a wide range of 3D construction aids. Within the application users can create 3D model lines and construction points using real 3D point snap in the point cloud, independently of Revit® work planes. Users can intersect model planes and thus find exact intersection lines and intersection points as well as create fitted work planes directly in the point clouds.

### 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. From the profile lines complex ground surface models can be created along with complex model components.

### Save time and money with automated functionality

With PointSense for Revit® 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). Functions for modeling pipe runs and structural elements from scan data enhance abilities for capturing as-builts for use in MEP applications within Revit®.

### Work with laser scanner data directly in the family editor

PointSense enables the use of 3D laser scanner data directly in the Revit® family editor. Point cloud regions, planar scan views or true ortho-photos make creating of object specific families for doors, windows, columns or pipe accessories simple and easy.

### Retain the overview, guaranteed

A section manager allows cropping point clouds inside Revit®, independent from the current view and provides a better orientation due hierarchical organized point cloud sections. FARO SCENE users can use the Planar-, Quick- and 3D-View to work directly with PointSense tools in Revit®. The photo like planar scan view of the data has improved recognition of details even while working with large point clouds projects. This makes orientation easier, increases the precision of your processing and allow users to easily manage and navigate the scanner data.

# Technical Requirements

<b>Operating Systems</b>	Microsoft® operating system, Windows 7, 8, 8.1 or 10 in the 64-bit version.
<b>Hardware Requirements</b>	Autodesk recommends a multi-core Intel® Xeon®, or an i-Series processor, or the AMD® equivalent with 16 GB RAM and DirectX® 11 compatible graphics card and SSD (Solid State Drive) hard disk with at least 5 GB of free memory.
<b>Supported Revit® Versions</b>	Revit® 2015 or later.

## Important Features

### ► Modeling in 3D

#### General

- Create walls quickly and precisely in the point cloud
- Automatic creation of new wall types for different wall thicknesses
- Automatic alignment of walls for the producing rectangular floor plans to user-defined tolerances
- Automatic intersection of wall ends
- Create a ground surface (topo-surface) from point cloud coordinates
- Surface analysis, comparison 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

- Fast and precise fitting of Revit® pipes directly in the point cloud or scan view (via VirtuSurv)
- Adjustment of Revit® pipe types to the diameters automatically 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
- Automatic alignment of pipes and pipe fittings to obtain a correctly connected network of pipe runs

#### Structural Elements

- Fast and precise fitting of structural elements, such as beams and columns from Revit® families
- Insertion of the suitable types by powerful profile detection command

### ► 3D construction aids

- Point cloud section manager, e. g. cropping point clouds independent from Revit® views
- 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
- Automatic determination of plane boundaries

### ► Ortho Images

- Create, directly in the Revit® project, ortho-images with optimized displays from point clouds
- 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 (VirtuSurv) and send coordinates from the planar view into the Revit® project
- Custom commands to create BIM elements directly in the scan view: walls, doors, windows, pillars, beams, columns etc.
- FARO SCENE users can utilize SCENE Scan Views with the same commands

### ► Work in the family editor

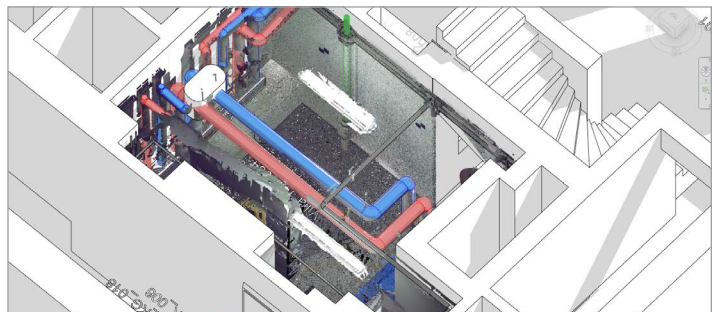
- Insert point cloud regions directly in the families editor
- Use scaled ortho-images as construction aids
- Use the planar scan view to create construction aids directly in the families editor
- Save model lines as a 2D or 3D Revit® family

### ► Work with linked documents

- Retrieve “Shared coordinates” directly from the point cloud

### ► Worksharing

- Support of Revit® Worksharing projects



Aligned pipes and pipe fittings in a cropped point cloud

For more information, call 800.736.0234  
or visit [www.faro.com](http://www.faro.com)