



Figure 1: Floor plan inside SOLV3D encompass.

Automated Site Plan from Point Cloud.

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Recently we have been experimenting with the creation of a top-down floorplan view from point cloud data. In our latest version of SOLV3D engine™ (Engine), we have released a tool called “Generate Floorplan”. Through the examination of point density across a sparse matrix, this tool maps the results into a transparent georeferenced tiff file ready for consumption in SOLV3D encompass™ (Encompass), or other software like Esri ArcGIS. This is extremely useful in remote or construction sites where the user would like a highly accurate and quick to produce floor plan.

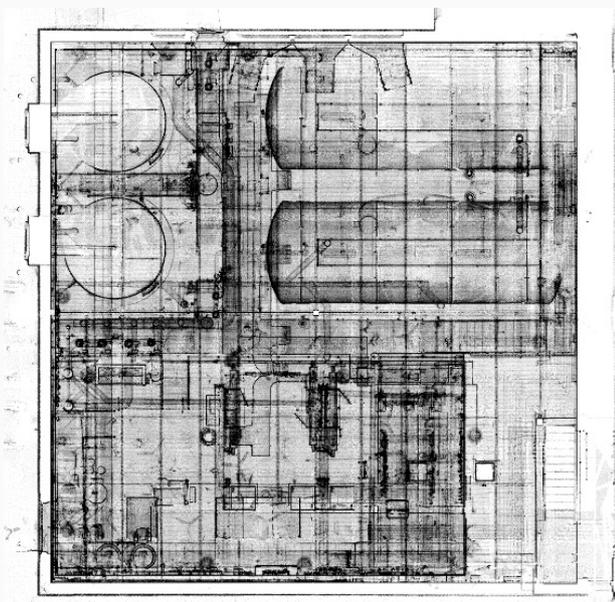


Figure 2: Indoor Facility at 90 percentile.

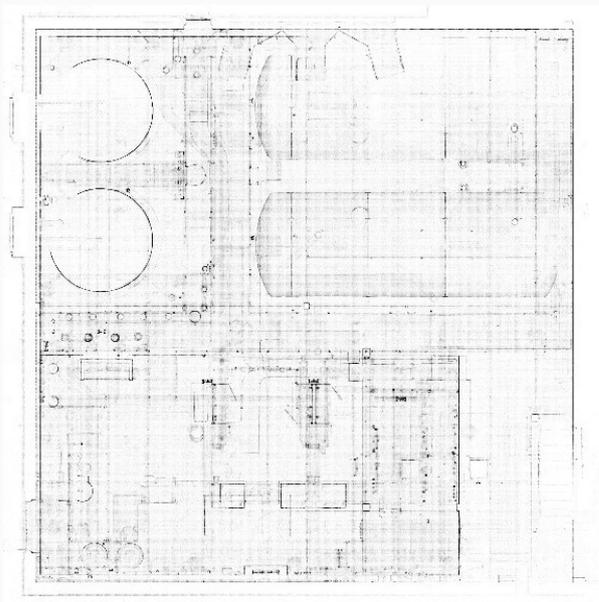


Figure 3: Indoor Facility at 99 percentile.

In this example, which uses terrestrial scanner data, a user can clearly see the layout of the indoor facility. The tanks, wall edges, catwalk and other features are clearly visible.

Pushing this a bit further, by changing different parameters, the user can fine tune the results to make some things clearer to see.



Figure 4: 99.9 percentile (with ground).



Figure 5: 90 percentile (ground removed).

Moving to an outdoor mobile mapping project, we can see that the building edges are greatly enhanced. By removing the ground classification and lowering the percentile, nearby features such as trees and poles become more visible.

Use cases for this tool could include:

- Viewing topography changes.
- Checking positional correctness of building walls or foundations as well as any changes when compared to design.
- Visibly see extent of LiDAR data on a computer that may not have the tools in place to view.

Future enhancements may include:

- Extraction of 2D linework of captured building edges or breaklines.
- Comparing the generated image to UAV/orthophotos for disaster analysis.
- Pair the generated image with Engine's object identification algorithms to automatically identify trees or other unique objects picked up within the dataset.

The latest release of Engine also includes some enhanced blurring of vehicles and people within images, a change detection function showing spatial differences between two-point clouds, as well as several cleanup utilities for converting/scaling different attributes of extra information within point cloud data.

To use this feature, or any other of our 70+ algorithms, please [contact us](#) to access a free 7-day trial of Engine.